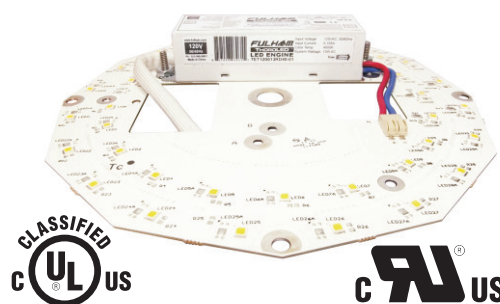


TET120013RDXX-X1, TEMUNV013RDXX-X1
TKT120013RDXX-X1, TKMUNV013RDXX-X1



120VAC / Universal Input Round LED Engine and LED Engine Retrofit Kits

- High density, high brightness chip array for use in Class 2 circular applications
- Constant Current module design for maximum efficacy
- Available in standard CCT's
- TET/TKT: Triac Dimmable; TEM/TKM: 0-10V Dimmable
- Suitable for use in retrofit rebate programs
- 80 CRI standard and 90 CRI available
- Engine includes UL recognized LED module and driver
- UL Classified LED Engine Retrofit Kits

General Ratings

Input Voltage	TET/TKT: 120VAC;50/60 Hz TEM/TKM: 120~277VAC;50/60Hz
Input Current	0.12A Max @120VAC
Nominal Input Power	13WAC (Max)
Max Lumen Output @ Full Power	1450 lumens @ 4000K / 80 CRI*
Power Factor	0.97 @120VAC
THD	<20%
Dimming Range	100%-10% (For TEM/TKM)
Beam Angle	120°
CRI	80, 90
Operating Ambient Temperature Range (Ta)	Engine: -35 to +40°C / -31 to +104°F; Kit: -35 to +45°C / -31 to +113°F
Maximum Driver Case Temperature (Tc driver)	TET/TKT: 88°C TEM/TKM: 90°C
Maximum Module Case Temperature (Tc mod)	90°C
Estimated Lumen Maintenance (L70)	50,000 hours at max Tc mod
Color Consistency	Binning per ANSI C78.377-2008; 7 SDCM
Overall Size	7" diameter x 0.945" H
Weight	TET/TKT: 200g TEM/TKM: 210g
Maximum Screw Installation Torque	35 inch - ounces
Safety/Compliance	Engines: cURus (File # E351548: PTL126X20www**; Driver File #: E342838) Kits: cULus File # E365124 Class 2 Lighting System RoHS Compliant
Warranty	5 years

* At Tc mod = 25°C

** www = PCB Rev #

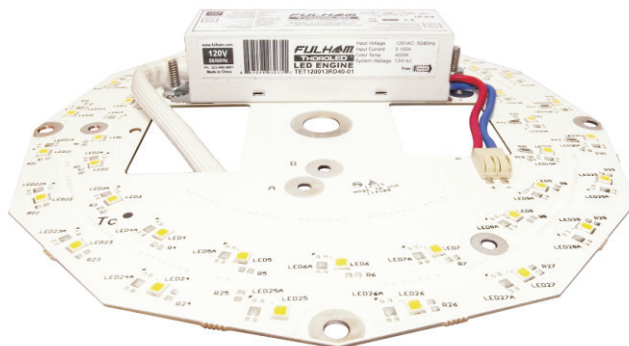


CAUTION - THIS LUMINAIRE HAS BEEN MODIFIED TO OPERATE LED LAMPS. DO NOT ATTEMPT TO INSTALL OR OPERATE FLUORESCENT LAMPS IN THIS LUMINAIRE.

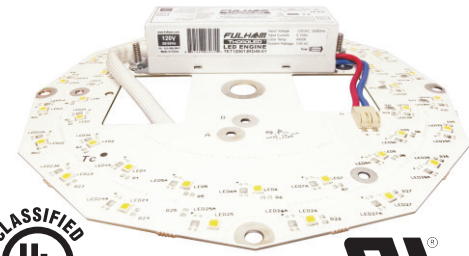
REPLACEMENT INFORMATION:
Replace Only With Fulham Electronic Co. Ltd.
DRIVER MODEL # XXXXXXXXXX-XXX

LED MODULE # XXXXXXXXXX

LED Engine Retrofit Kit
only: Hardware and Labels



TET120013RDXX-X1, TEMUNV013RDXX-X1
TKT120013RDXX-X1, TKMUNV013RDXX-X1



Part Number Matrix

T E T 120 013 RD 40 - 0 1

	Compliance	Control***	Engine Input Voltage	Engine Input Power	Color Temperature	Configuration
	E = Engine UL Recognized	T* = Triac M* = 0-10V	120* = 120VAC UNV* = 120~277VAC	013* = 13W	27 = 2700K 30* = 3000K 35 = 3500K 40* = 4000K 50 = 5000K	0* = 80 CRI 1 = 90 CRI 2 = 80 CRI + Conf Coat 3 = 90 CRI + Conf Coat



**K = LED Engine
Retrofit Kit UL Classified

- * Indicates standard engine options. All others are built to order.
 ** LED Engine Retrofit Kit includes mounting hardware, UL retrofit stickers, and installation instructions.
 *** TET/TKT: Triac Dimmable available only in 120VAC Input, TEM/TKM: 0-10V Dimmable available only in Universal Input.

Electrical and Optical Specifications

CCT	Part Number	Input Power	Nominal Luminous Flux @ 90 CRI	Nominal Luminous Flux @ 80 CRI	Efficacy @ 80 CRI
3000K	TET120013RD30-x1	13W	1035 lumens	1350 lumens	103 lm/W
	TKT120013RD30-x1				
	TEMUNV013RD30-x1				
	TKMUNV013RD30-x1				
4000K	TET120013RD40-x1	13W	1200 lumens	1450 lumens	111 lm/W
	TKT120013RD40-x1				
	TEMUNV013RD40-x1				
	TKMUNV013RD40-x1				

Module Input Current	Module Abs. Max. Forward Voltage @Tc = 50°C
50mA	30.0 VDC
100mA	30.6 VDC
150mA	31.3 VDC
200mA	31.6 VDC
250mA	32.4 VDC
300mA	32.9 VDC
350mA	33.6 VDC
400mA	34.0 VDC
450mA	34.4 VDC
500mA	34.6 VDC

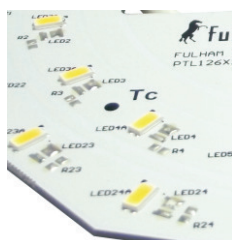
- 1) Electrical and optical specifications are based on Tc mod = 25°C.
 2) Standard lumen output and efficacy is calculated for standard options. Reference CCT vs Lumen Output chart for lumen ratio calculation.
 3) Specifications are subject to change without notice.

Thermal Specifications

LED Engine

LED Engine Retrofit Kit****

Storage Temperature Range	-35 to 100°C	
Operating Ambient Temperature Range	-35 to 40°C	-35 to 45°C
Maximum Case Temperature (Tc)	Module : 90°C; Driver : 88°C/90°C	



Tc located on module

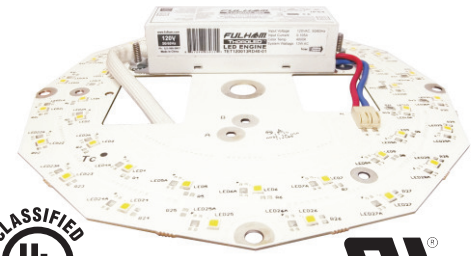


Tc located on driver

****Suitable for ceiling luminaire with minimum dimensions: 8.5" diameter with a height of 1.1".

Refer to LED Engine Retrofit Kit Installation Instructions for further detail.

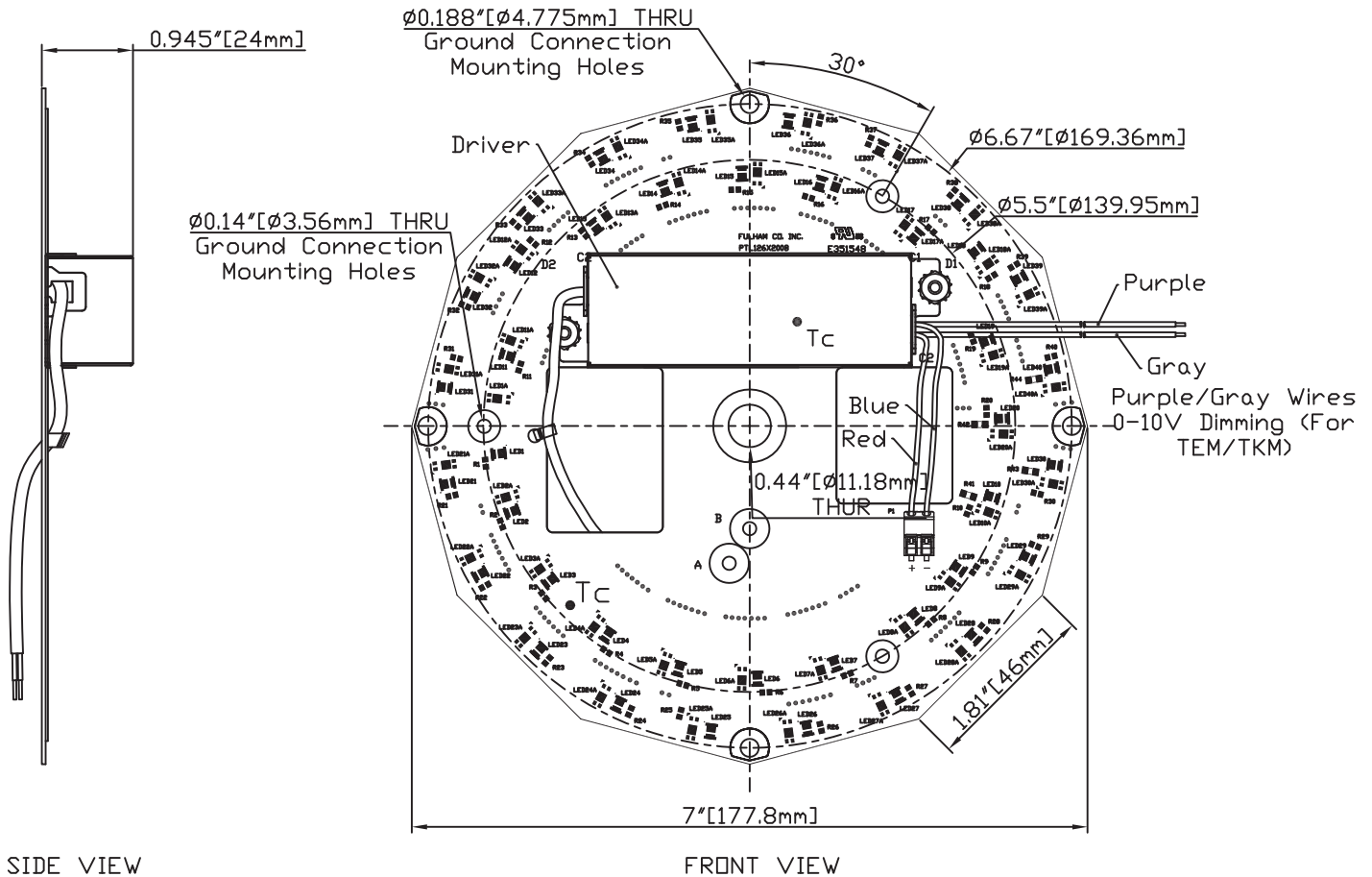
TET120013RDXX-X1, TEMUNV013RDXX-X1
TKT120013RDXX-X1, TKMUNV013RDXX-X1

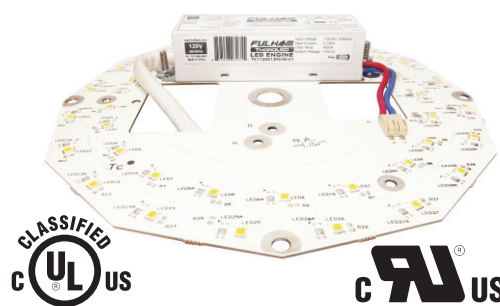


Mechanical Drawings

Wire Length - Inches

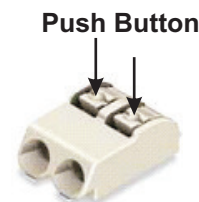
AC Input - Black / White	12
0-10V Dimming - Purple (10V+) / Gray (10V-)	12





Termination Notes

- If connectors are used, use solid wire size 24 – 18 AWG, rated at a minimum 50V, minimum 105°C, and stripped to length between 6-7 mm (0.24-0.28 inches).
- Push button for insertion of conductor and for easy removal of wires.
- Connector not for multiple use



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, 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.

Environmental Rating

- Modules are rated for dry locations, unless option for conformal coating is requested.
- Conformal coating is acrylic based and rated for Environment and Moisture Protection per IPC-CC-830.

Electrostatic Sensitive Product (ESD)

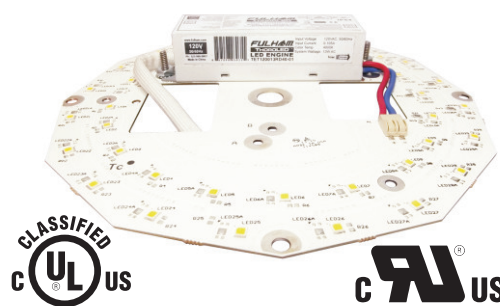
- Fulham LED products should be handled with proper measures to protect against any potential ESD damage.
- When servicing, personnel should be ground and direct contact with LED should be avoided.

Thermal Management

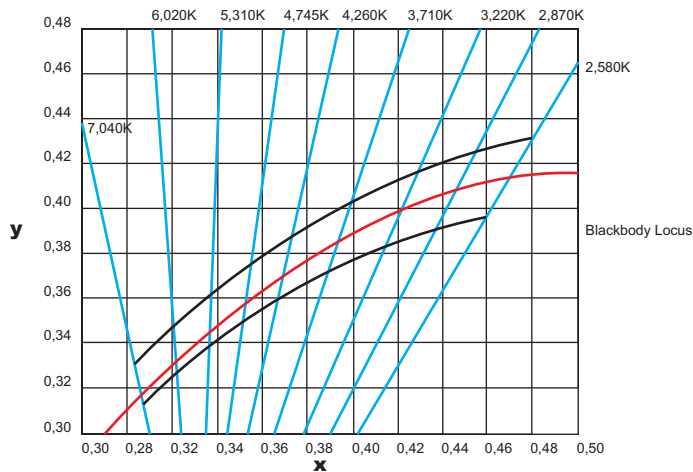
- Proper thermal management should be employed to ensure life and reliability of product.
- Use of thermal grease, paste, pad, or other material interface is highly recommended.

Polarity Notes

- 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.

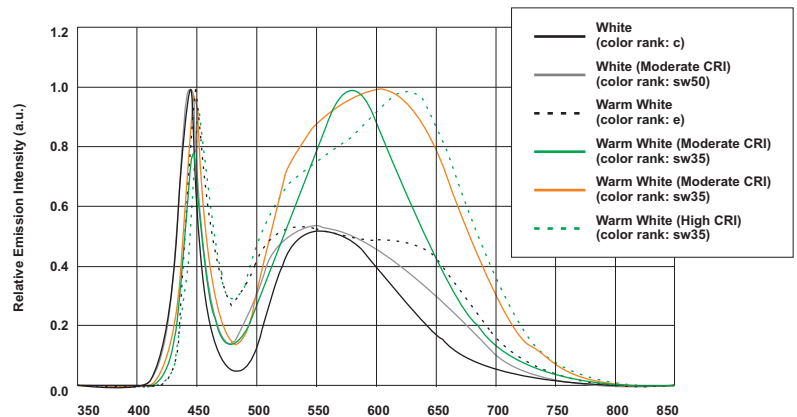


Color and Binning



Ref. Nichia
Chromaticity Diagram for ANSI bins
For reference only. For more detailed info, contact factory.

Optical Spectrum***



*** Value varies depending on product type and color rank
Ref. Nichia
LED Catalogue 2013
For reference only. For more detailed info, contact factory.

Thermal De-Rating

Ambient Temperature (Ta)	Thermal De-rating Multiplier
25°C	1
30°C	0.991
35°C	0.989
40°C	0.980
45°C	0.975
50°C	0.970
55°C	0.960
60°C	0.950

Ref. Nichia
LED757 Spec Sheet
For reference only. For more detailed info, contact factory.

CCT vs Luminous Flux

CCT	Luminous Flux Ratio
2700K	0.87
3000K	0.93
3500K	0.96
4000K	1.00
5000K	1.07

Ref. Nichia
LED757 Spec Sheet
For reference only. For more detailed info, contact factory.