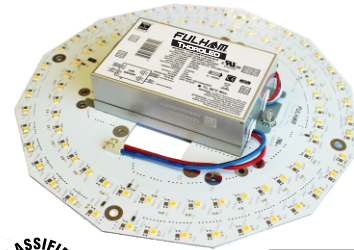


TEUNV032RDXXX1, TEUNV039RDXXX1,
TEMUNV032RDXXX1, TEMUNV039RDXXX1,
TKUNV032RDXXX1, TKUNV039RDXXX1,
TKMUNV032RDXXX1, TKMUNV039RDXXX1



Universal Input Round LED DC Engines and LED DC Engine Retrofit Kits

- High Density, high brightness chip array
- Suitable for open or fully enclosed luminaires
- Suitable for luminaires with plastic and glass lenses
- Constant Current module design for maximum efficacy
- 0-10V Dimmable
- Universal Input (120~277V)
- Class 2 Lighting System
- UL Recognized (DC Engine option)
- UL Classified (DC Engine Retrofit Kit option)
- Energy Star Luminaire 2.0 Certified Subcomponent Database (CSD) (for rebate programs)*
- Energy Star Luminaire 2.0 Listed (for rebate programs)*

General Specifications

Input Voltage ^①	TE/TK/TEM/TKM: 120~277V;50/60Hz	
Input Current ^①	32RD = 0.32A Max @120VAC	39RD = 0.39A Max @120VAC
	32RD = 0.13A Max @277VAC	39RD = 0.15A Max @277VAC
Input Power ^①	32RD = 32.6W	39RD = 39.4W
Energy Star Input Power (Measured)	32RD = 31.6W	39RD = 38.1W
Input PF	>.98	
THD	<20%	
Module Operating Voltage	32RD: 25.2VDC	39RD: 31.5VDC
Max Lumen Output @ Full Power ^①	32RD = 3200 lumens; 39RD = 4000 lumens @ 4000K / 80CRI / 25°C	
Dimming Type / Range	0-10V / 100% ~ 10%	
Beam Angle	120°	
CRI	80, 90	
Storage Temperature Range	-35°C to 100°C / -31°F to 212°F	
Operating Ambient Temperature Range (Ta)	Engine: -35 to +50°C / -31 to +122°F; Kit: -35 to +45°C / -31 to +113°F	
Maximum Driver Case Temperature (Tc driver)	TE/TK/TEM/TKM: 90°C	
Maximum Module Case Temperature (Tc module)	L70: Tc max=85°C (Ts=90°C) / L90: Tc max=85°C (Ts=90°C)	
Estimated Lumen Maintenance	L70: >60,000Hrs / L90: 40,000Hrs	
Color Consistency	Binning per ANSI C78.377-2011 @ 25°C; 7 SDCM	
Overall Size	9" diameter x 1.22" H	
Weight	TE/TK: 525g	TEM/TKM: 575g
Driver Part Number	TE/TK: T1UNV1050-42C	TEM/TKM: T1M1UNV1050-42C
DC Module Part Number	32RD: TM64RD05XX-2X1	39RD: TM80RD05XX-2X1
Maximum Screw Installation Torque	35 inch - ounces	
Safety/Compliance	DC Engines: cURus (File # E351548: PTL123X20www ^② ; Driver File # E342838)	
	DC Engines Retrofit Kits: cULus File # E365124	
	Energy Star Luminaire 2.0 Certified Subcomponent Database (CSD)*	
	Energy Star Luminaire 2.0 Listed*	
	Class 2 Lighting System	
RFI/EMI	RoHS Compliant	
	TE/TK/TEM/TKM:FCC Part 15B Consumer, EN55015	
	A / <24 dBA	
	No	
	50,000hrs @ Ta <= 45°C (Tc mod <=85°C; Tc driver <= 75°C)	
Warranty	5 years @ Max. Tc from the date of manufacture	

* See page #4 "Certification Chart" for exact models.

① Measured electrical data per UL file

② www = PCB Rev #

TEUNV032RDXXX1, TEUNV039RDXXX1,
TEMUNV032RDXXX1, TEMUNV039RDXXX1,
TKUNV032RDXXX1, TKUNV039RDXXX1,
TKMUNV032RDXXX1, TKMUNV039RDXXX1



Part Number Matrix

T **E** **M** **UNV** **032RD** **40** **0** **1**

Compliance
E = LED DC Engines
(UL Recognize)
① K = DC Engine
Retrofit Kit (UL Classified)

③ **Control**
③ Blank = Non-Dim
③ M = 0-10V

Engine Input Voltage
③ UNV = 120~277VAC

Engine Input Power
③ 032 = 32W
③ 039 = 39W

Color Temperature
27 = 2700K
③ 30 = 3000K
35 = 3500K
③ 40 = 4000K
50 = 5000K

Configuration
③ 0 = 80 CRI
1 = 90 CRI
2 = 80 CRI + Conf Coat
3 = 90 CRI + Conf Coat

Electrical and Optical Specifications

Color Temperature	Part Number	Input Power	Nominal Luminous Flux @ 90 CRI	Nominal Luminous Flux @ 80 CRI	Efficacy @ 80 CRI
3000K	TEUNV032RD30x1 TKUNV032RD30x1 TEMUNV032RD30x1 TKMUNV032RD30x1	31.6W	2380 lumens	2975 lumens	94 lm/W
	TEUNV039RD30x1 TKUNV039RD30x1 TEMUNV039RD30x1 TKMUNV039RD30x1	38.1W	3016 lumens	3770 lumens	98 lm/W
4000K	TEUNV032RD40x1 TKUNV032RD40x1 TEMUNV032RD40x1 TKMUNV032RD40x1	31.6W	2560 lumens	3200 lumens	101 lm/W
	TEUNV039RD40x1 TKUNV039RD40x1 TEMUNV039RD40x1 TKMUNV039RD40x1	38.1W	3200 lumens	4000 lumens	104 lm/W

Luminous Flux De-Rating: CCT and CRI Multipliers

	2700K	3000K	3500K	4000K	5000K
CRI 80(R9> 0)	0.92	0.96	0.98	1.00	1.09
CRI 90(R9>50)	0.74	0.75	0.76	0.78	0.83

NOTES:

- 1) Performance based on Tc mod = 25°C. See thermal de-rating chart (pg. 3) for higher temperature operation.
- 2) Electrical and optical specifications are based on a 2700K model and at Energy Star elevated case temperature.
- 3) Nominal luminous flux at 90 CRI are calculated values, not measured.
- 4) Refer to Energy Star CSD or Luminaires 2.0 for actual measurements on specific part numbers.
- 5) Performance for these components have been tested in accordance with Energy Star.
- 6) Nominal lumen output and efficacy is calculated for standard options. Reference CCT & CRI vs Luminous Flux chart for lumen ratio calculation.
- 7) Specifications are subject to change without notice.

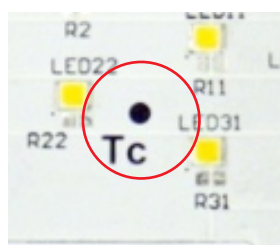
- ③ Standard Product offering (All other options are made to order with MOQ and lead time)
① LED Engine Retrofit Kit includes mounting hardware, retrofit labels, and installation instructions.
③ TEM/TKM: 0-10V Dimmable.

TEUNV032RDXXX1, TEUNV039RDXXX1,
TEMUNV032RDXXX1, TEMUNV039RDXXX1,
TKUNV032RDXXX1, TKUNV039RDXXX1,
TKMUNV032RDXXX1, TKMUNV039RDXXX1

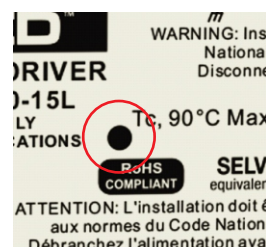


Thermal Specifications

	LED Engine	⑦ LED Engine Retrofit Kit
Storage Temperature Range	-35°C to 100°C / -31°F to 212°F	-35°C to 100°C / -31°F to 212°F
Operating Ambient Temperature Range	-35°C to 50°C / -31°F to 122°F	-35°C to 45°C / -31°F to 113°F
Maximum Driver Case Temperature (Tc)	88°C / 190.4°F	90°C / 194°F
Maximum Module Case Temperature (Tc)	L70: 85°C / 185°F; L90: 85°C / 185°F	L70: 85°C / 185°F; L90: 85°C / 185°F



Tc located on module



Tc located on driver

Thermal De-Rating: Tc vs. Luminous Flux vs. Total Vf Multiplier

Module Case Temperature (Tc)	Luminous Flux Multiplier	Total Vf Multiplier
25°C	1.000	1.000
30°C	0.995	0.997
35°C	0.989	0.993
40°C	0.984	0.990
45°C	0.978	0.986
50°C	0.973	0.983
55°C	0.964	0.979
60°C	0.959	0.976
65°C	0.951	0.976
70°C	0.942	0.972
75°C	0.937	0.969
80°C	0.929	0.965
85°C	0.921	0.962
90°C	0.910	0.958
95°C	0.901	0.958
100°C	0.890	0.955

NOTES:

- 1) Refer to LED Engine Retrofit Kit Installation Instructions for further detail.
- 2) This LED Engine Kit can retrofit any luminaire with a length/height greater or equal to the minimum dimensions shown on the Installation Instructions.
- 3) This LED Engine Kit can be used with luminaires similar to the one illustrated on the Installation Instructions.

⑦ Suitable for wall sconce luminaire with minimum dimensions: 10.5" diameter with a height of 1.3".

TEUNV032RDXXX1, TEUNV039RDXXX1,
TEMUNV032RDXXX1, TEMUNV039RDXXX1,
TKUNV032RDXXX1, TKUNV039RDXXX1,
TKMUNV032RDXXX1, TKMUNV039RDXXX1



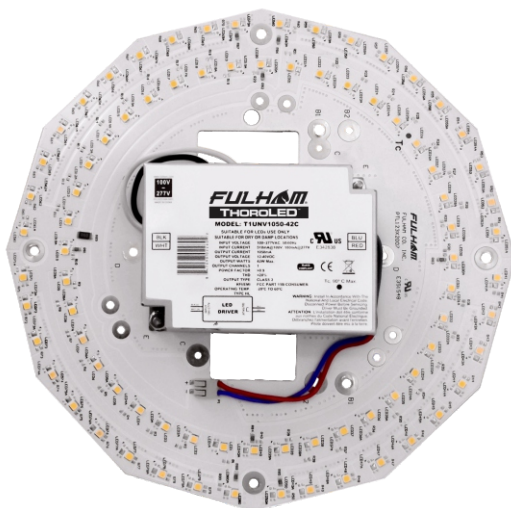
Certification Chart *

Energy Star[™] TM-21 Calculator Data

Model	TXUNV032RDxxx1 TXMUNV032RDxxx1	TXUNV039RDxxx1 TXMUNV039RDxxx1
Classification		
RoHS COMPLIANT	YES	
cUL US	YES	
CLASSIFIED cUL US	TKUNVxxxRDxxx1 TKMUNVxxxRDxxx1	
ENERGY STAR Listed	TKMUNV032RDxxx1 TKMUNV039RDxxx1	
ENERGY STAR CSD	TXUNV032RDxxx1 TXMUNV032RDxxx1	TXUNV039RDxxx1 TXMUNV039RDxxx1
Class 2 Lighting System	YES	

Tc Module	Reported L70	Reported L90
55°C	>60,000 Hrs	>60,000 Hrs
85°C	>60,000 Hrs	40,000 Hrs
100°C	>60,000 Hrs	24,000 Hrs
Tc Module	Calculated L70	Calculated L90
55°C	345,000 Hrs	96,000 Hrs
85°C	166,000 Hrs	40,000 Hrs
100°C	109,000 Hrs	24,000 Hrs

Product Image: 9" (32W-39W) Round DC Engine Kit



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

Model: TKxUNV03xRDxx-x1
Information: Replace only with:
DRIVER MODEL #: T1xxUNV1050-42C
LED MODULE #: TMxxRD05xx-2x1



NOTES:

- Energy Star CSD:
https://www.energystar.gov/products/lighting_fans/certified_lighting_subcomponent_database_csd
- Energy Star Listed:
https://www.energystar.gov/productfinder/product/certified-light-fixtures/results?scrollTo=342&search_text=fulham&fixture_type_isopen=&markets_filter=United+States&zip_code_filter=&product_types=Select+a+Product+Category&sort_by=light_output_lumens&sort_direction=asc&page_number=0&lastpage=0

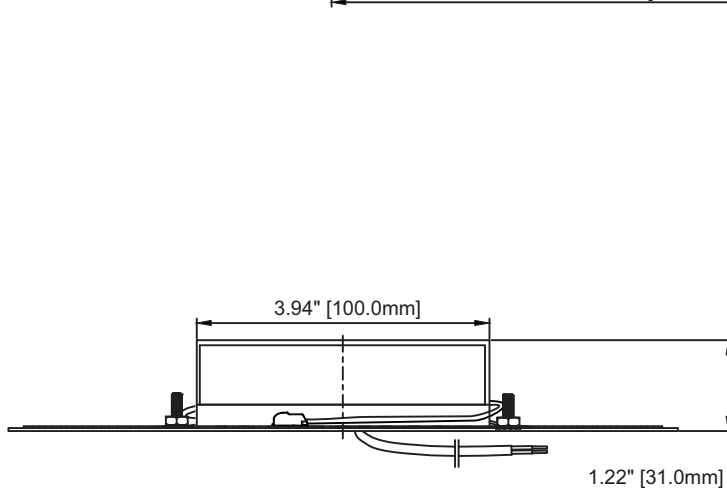
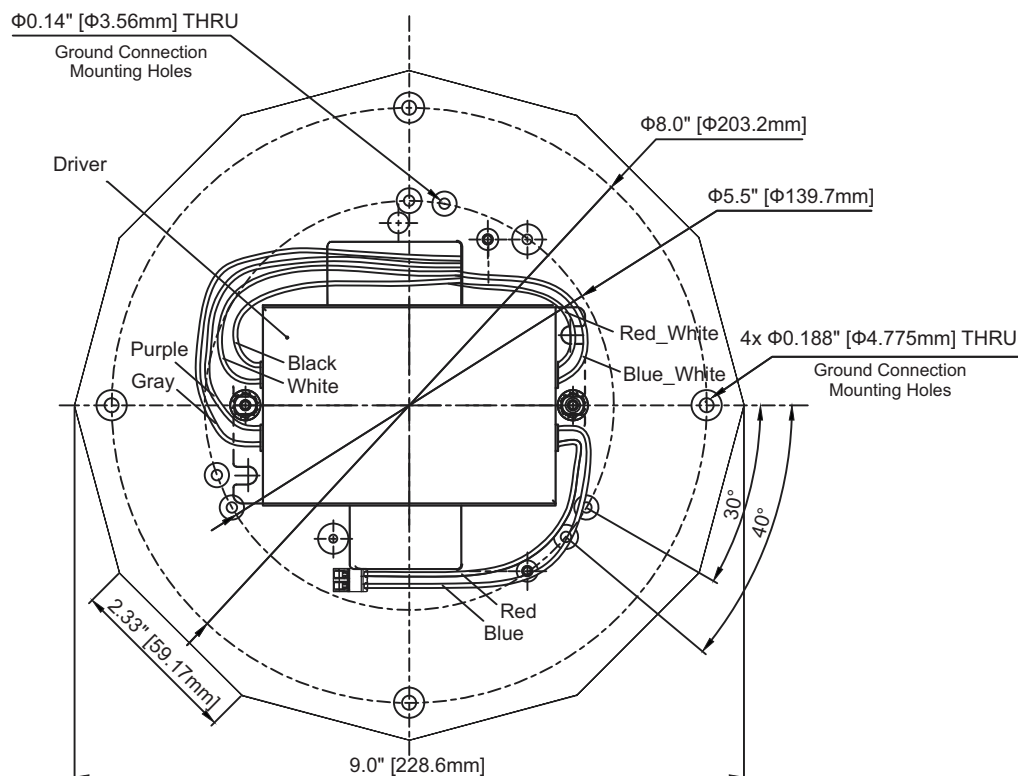
LED Engine Retrofit Kit
only: Hardware and Labels

TEUNV032RDXXX1, TEUNV039RDXXX1,
 TEMUNV032RDXXX1, TEMUNV039RDXXX1,
 TKUNV032RDXXX1, TKUNV039RDXXX1,
 TKMUNV032RDXXX1, TKMUNV039RDXXX1

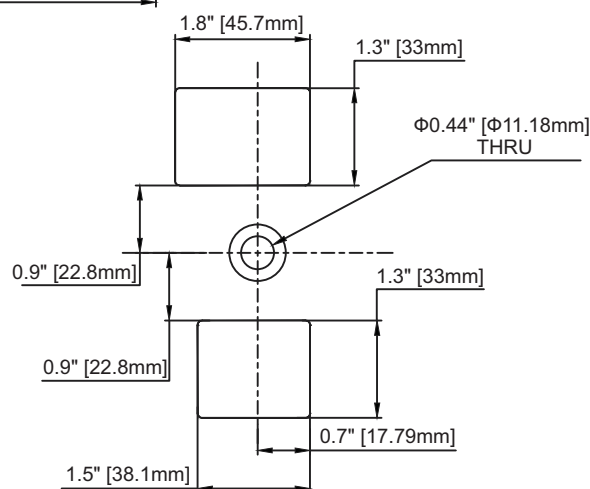


Mechanical Drawings

TOP VIEW



SIDE VIEW



PARTIAL VIEW

Wire Function	- Color(Polarity)	Wire Length
AC Input	- Black / White	12 inches
0-10V Dimming	- Purple(10V+) / White(10V-)	12 inches
12V auxiliary output	- Red_White(+) / Blue_White(-)	12 inches

Note: 0-10V Dimming and 12V auxiliary output wires are only for dimmable version.

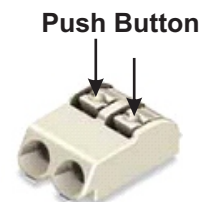
TEUNV032RDXXX1, TEUNV039RDXXX1,
TEMUNV032RDXXX1, TEMUNV039RDXXX1,
TKUNV032RDXXX1, TKUNV039RDXXX1,
TKMUNV032RDXXX1, TKMUNV039RDXXX1



Guidelines

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

- LED DC Engines Modules are rated for dry locations, unless option for conformal coating is requested.
- Conformal coating is Acrylic/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.

Polarity Notes

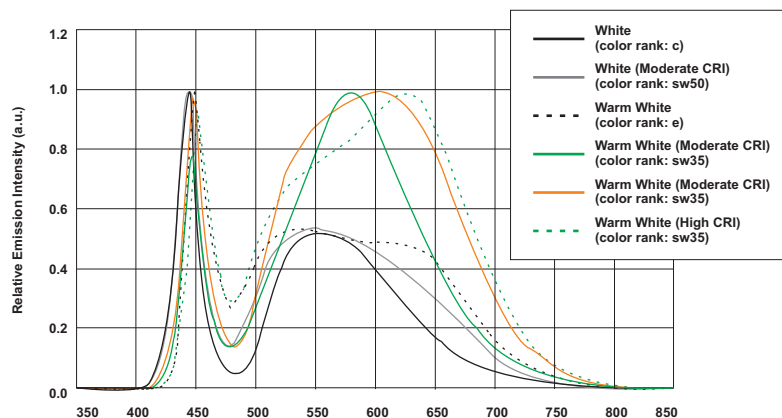
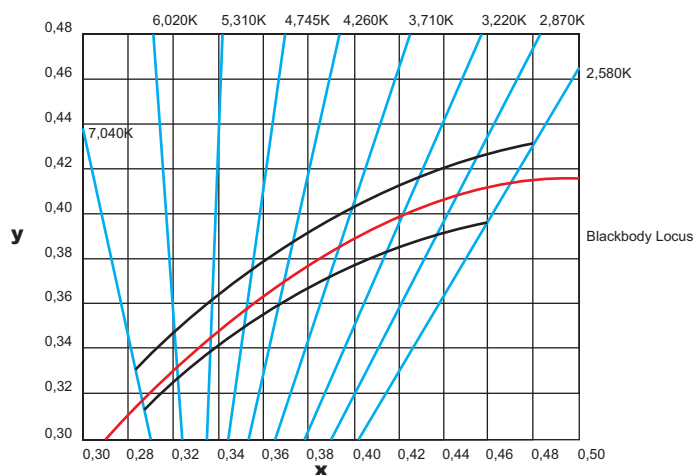
- LED Modules are polarity sensitive.
- Ensure that “positive” from LED Driver is connected to “positive” of LED modules and that “negative” from LED Driver is connected to “negative” of LED modules.
- Polarities of LED modules are marked with “+” for positive and “-” for negative.

TEUNV032RDXXX1, TEUNV039RDXXX1,
 TEMUNV032RDXXX1, TEMUNV039RDXXX1,
 TKUNV032RDXXX1, TKUNV039RDXXX1,
 TKMUNV032RDXXX1, TKMUNV039RDXXX1



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 Nichia Chromaticity Diagram for Color and Binning. Binning per ANSI C78.377-2011 @ 25°C; 7 SDCM.
- 3) The Optical Spectrum values vary depending on product type and color rank.
- 4) Driver included.

TEUNV032RDXXX1, TEUNV039RDXXX1,
 TEMUNV032RDXXX1, TEMUNV039RDXXX1,
 TKUNV032RDXXX1, TKUNV039RDXXX1,
 TKMUNV032RDXXX1, TKMUNV039RDXXX1



DC Engine Equivalency Chart

DC Engine/Kit (9" Round)				CFL					
Engine/Kit Part Number	System Wattage	Lumen Output	Efficacy	CFL Style	Lamp Wattage	# of Lamps	Total Wattage	Lumen Output	Efficacy
TEUNV032RDxx01	31.6W	3250 lm (4K/80CRI)	102 lm/W	Quad	18W	3	54W	3225 lm	59 lm/W
TKUNV032RDxx01					26W	2	52W	3100 lm	59 lm/W
TEMUNV032RDxx01				Triple	18W	3	54W	3060 lm	59 lm/W
					26W	2	52W	3072 lm	59 lm/W
TKMUNV032RDxx01				Circline T5	55W	1	55W	3580 lm	65 lm/W
	Circline T9	22W+32W	1	54W	2275 lm	42 lm/W			
TEUNVV039RDxx01	38.1W	4055 lm (4K/80CRI)	106 lm/W	Quad	26W	3	78W	4650 lm	59 lm/W
TKUNV039RDxx01				Triple	26W	3	78W	4608 lm	59 lm/W
					32W	2	64W	4080 lm	63 lm/W
					42W	2	84W	5440 lm	64 lm/W
TEMUNV039RDxx01				Circline T5	22W+40W	1	62W	4335 lm	69 lm/W
TKMUNV039RDxx01				Circline T9	32W+40W	1	72W	3475 lm	48 lm/W

NOTES:

- 1) For reference only, several factors apply.
- 2) Emergency systems are not UL classified for field installation.

TEUNV032RDXXX1, TEUNV039RDXXX1,
 TEMUNV032RDXXX1, TEMUNV039RDXXX1,
 TKUNV032RDXXX1, TKUNV039RDXXX1,
 TKMUNV032RDXXX1, TKMUNV039RDXXX1



DC ENGINES/KITS WITH EMERGENCY OPTIONS

NOTE: Emergency systems are not UL classified for field installation.

Engine/Kit Part Number	Emer. Driver Part Number	Wattage	Battery Part Number	Harness (mA)	Total Vf (V)	Total Power (W)	Total Lum. Output (lm)*	Eff. (lm/W)
TEUNVV032RDxx01	FHS2-UNV-36L	4W	FHSBATT8-AA9 FHSBATL3-1	FHS-HARNESS-100	21.7	3.3	525	162
TKUNV032RDxx01		6W	FHSBATL6-.6	FHS-HARNESS-250	21.9	5.5	870	159
TEMUNV032RDxx01		8W	FHSBATL3-1.5 FHSBATL3-1.5S	FHS-HARNESS-350	22.2	7.8	1215	156
TKMUNV032RDxx01								
TEUNVV039RDxx01	FHS2-UNV-36L	4W	FHSBATT8-AA9 FHSBATL3-1	FHS-HARNESS-100	26.9	2.7	440	164
TKUNV039RDxx01		6W	FHSBATL6-.6	FHS-HARNESS-200	27.2	5.4	875	161
TEMUNV039RDxx01		8W	FHSBATL3-1.5 FHSBATL3-1.5S	FHS-HARNESS-250	27.4	6.9	1090	159
TKMUNV039RDxx01								

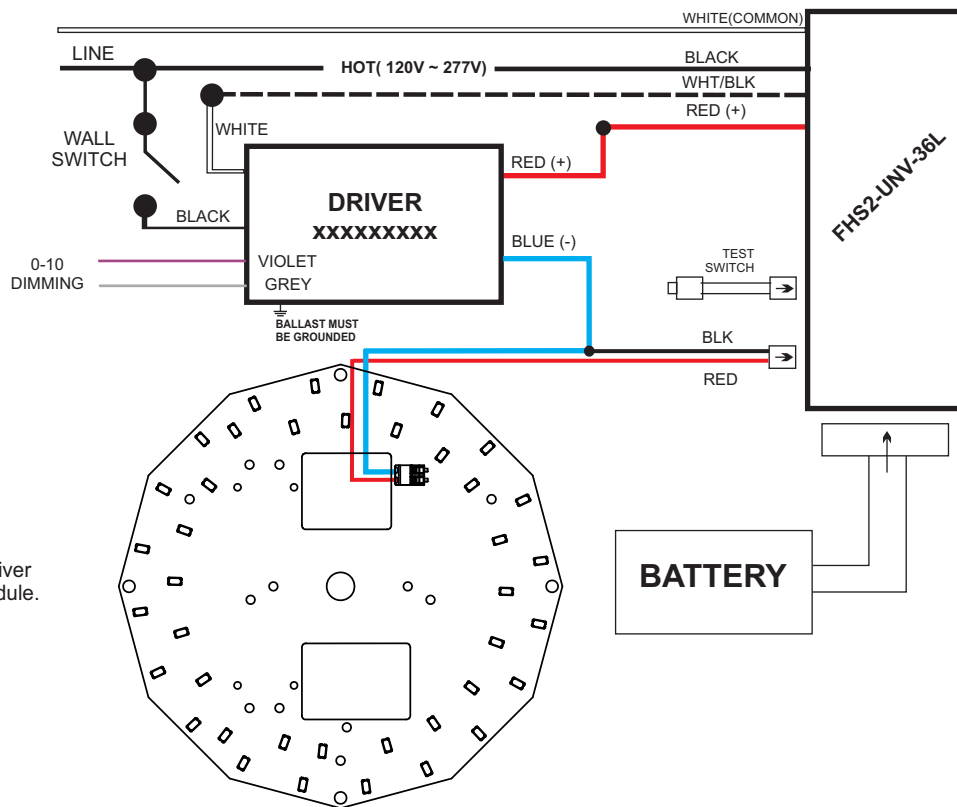
NOTES:

- 1) For reference only, several factors apply.
- 2) Emergency systems are not UL classified for field installation.

TEUNV032RDXXX1, TEUNV039RDXXX1,
TEMUNV032RDXXX1, TEMUNV039RDXXX1,
TKUNV032RDXXX1, TKUNV039RDXXX1,
TKMUNV032RDXXX1, TKMUNV039RDXXX1



Wiring Diagram: with Emergency System



NOTE: For illustration purposes, LED driver is shown separate from LED module.

NOTES:

1) For illustration purposes, LED driver is shown separate from LED module.