

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 [Ⓞ] | TE/TK/TEM/TKM: 120~277V;50/60Hz | |
| Input Current [Ⓞ] | 32RD = 0.32A Max @120VAC | 39RD = 0.39A Max @120VAC |
| | 32RD = 0.13A Max @277VAC | 39RD = 0.15A Max @277VAC |
| Input Power [Ⓞ] | 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 [Ⓞ] | 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 [Ⓢ] ; 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 | |
| | RoHS Compliant | |
| RFI/EMI | TE/TK/TEM/TKM:FCC Part 15B Consumer, EN55015 | |
| Sound Rating / Noise | A / <24 dBA | |
| Thermal Feedback | No | |
| Service Life | 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.
[Ⓞ] Measured electrical data per UL file
[Ⓢ] www = PCB Rev #

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



Part Number Matrix

T E M UNV 032RD 40 0 1

| | | | | | |
|---|---|--|--|---|---|
| <p>Compliance E = LED DC Engines (UL Recognize) Ⓞ K = DC Engine Retrofit Kit (UL Classified)</p> | <p>Control Ⓞ Blank = Non-Dim Ⓞ M = 0-10V</p> | <p>Engine Input Voltage Ⓞ UNV = 120~277VAC</p> | <p>Engine Input Power Ⓞ 032 = 32W Ⓞ 039 = 39W</p> | <p>Color Temperature 27 = 2700K Ⓞ 30 = 3000K 35 = 3500K Ⓞ 40 = 4000K 50 = 5000K</p> | <p>Configuration Ⓞ 0 = 80 CRI 1 = 90 CRI 2 = 80 CRI + Conf Coat 3 = 90 CRI + Conf Coat</p> |
|---|---|--|--|---|---|

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 |
| | 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.

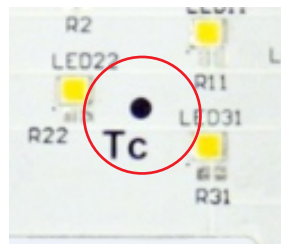
- Ⓞ Standard Product offering (All other options are made to order with MOQ and lead time)
- Ⓞ LED Engine Retrofit Kit includes mounting hardware, retrofit labels, and installation instructions.
- Ⓞ TEM/TKM: 0-10V Dimmable.

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



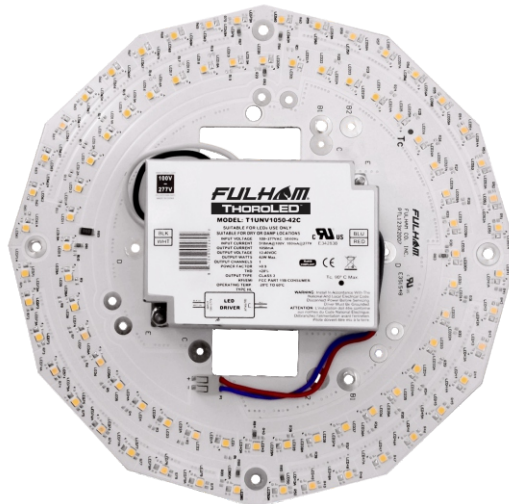
Certification Chart *

Energy Star™ TM-21 Calculator Data

| Model | TXUNV032RDxxx1 TXMUNV032RDxxx1 | TXUNV039RDxxx1 TXMUNV039RDxxx1 | |
|--------------------------------|------------------------------------|-----------------------------------|-----------------------------------|
| Classification | | | |
| | YES | | |
| | YES | | |
| | TKUNVxxxRDxxx1 TKMUNVxxxRDxxx1 | | |
| | TKMUNV032RDxxx1 TKMUNV039RDxxx1 | | |
| | 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: TXxUNV03xRDxx-x1
Information: Replace only with:
DRIVER MODEL #: T1xxUNV1050-42C
LED MODULE #: TMxxRD05xx-2x1



NOTES:

LED Engine Retrofit Kit only: Hardware and Labels

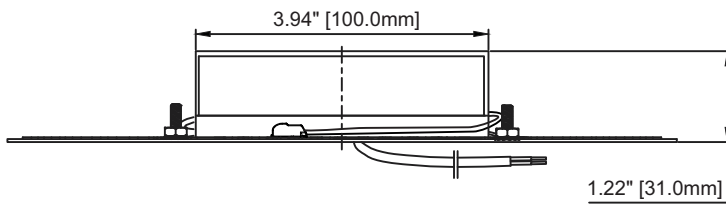
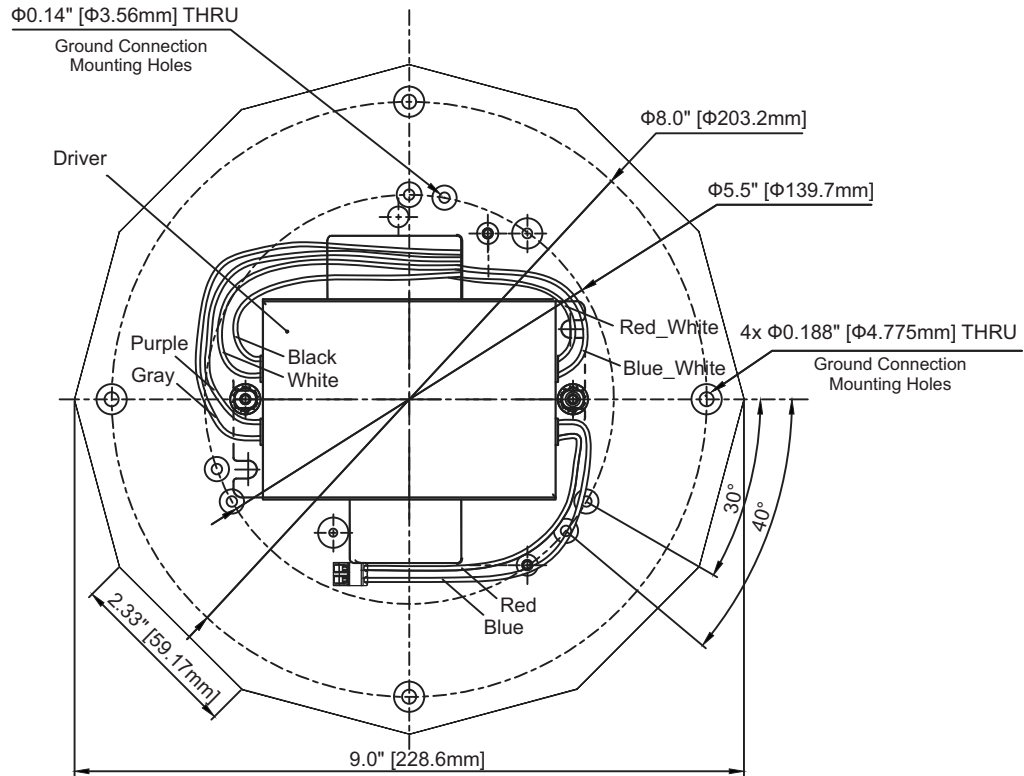
- Energy Star CSD:
https://www.energystar.gov/products/lighting_fans/certified_lighting_subcomponent_database_csd
- Energy Star Listed:
https://www.energystar.gov/productfinder/product/certified-light-fixtures/results?scrollTo=342&search_text=fulham&fixture_type_isopen=&markets_filter=United+States&zip_code_filter=&product_types=Select+a+Product+Category&sort_by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

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

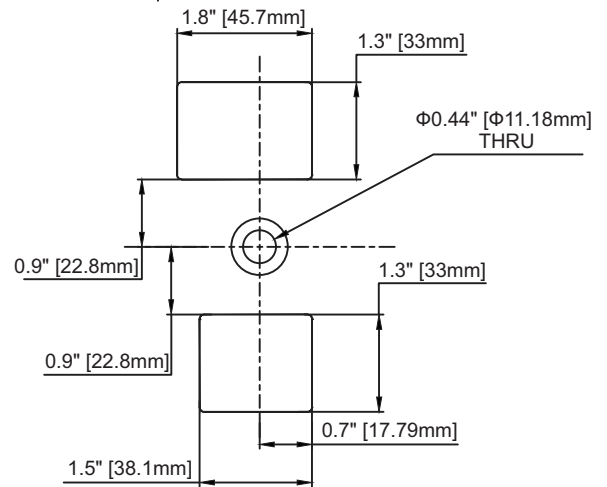


Mechanical Drawings

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.

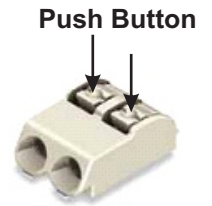
TEUNV032RDXXX1, TEUNV039RDXXX1,
TEMUNV032RDXXX1, TEMUNV039RDXXX1,
TKUNV032RDXXX1, TKUNV039RDXXX1,
TKMUNV032RDXXX1, TKMUNV039RDXXX1



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

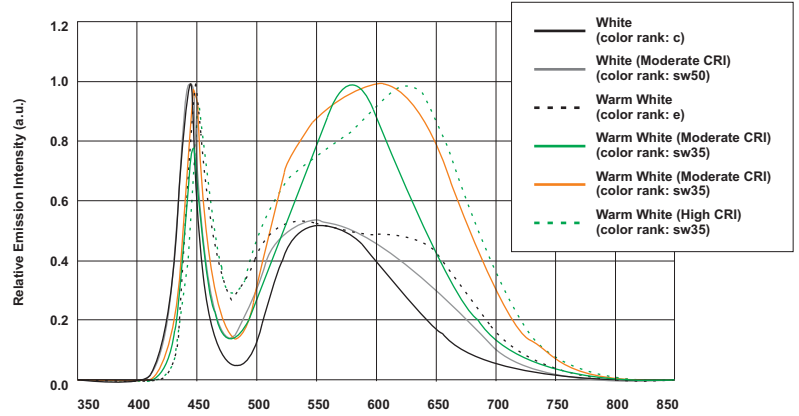
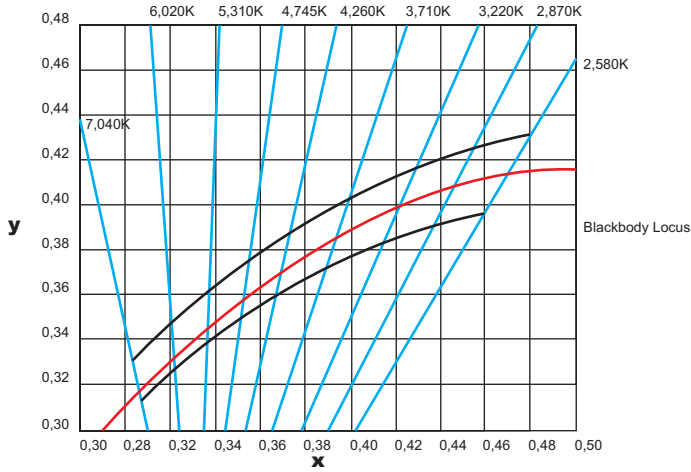
- LED Modules are polarity sensitive.
- Ensure that "positive" from LED Driver is connected to "positive" of LED modules and that "negative" from LED Driver is connected to "negative" of LED modules.
- Polarities of LED modules are marked with "+" for positive and "-" for negative.

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 |
| TKMUNV032RDxx01 | | | | | 26W | 2 | 52W | 3072 lm | 59 lm/W |
| | | | | Circline T5 | 55W | 1 | 55W | 3580 lm | 65 lm/W |
| | | | | Circline T9 | 22W+32W | 1 | 54W | 2275 lm | 42 lm/W |
| TEUNV039RDxx01 | 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 | | | | | | | | |

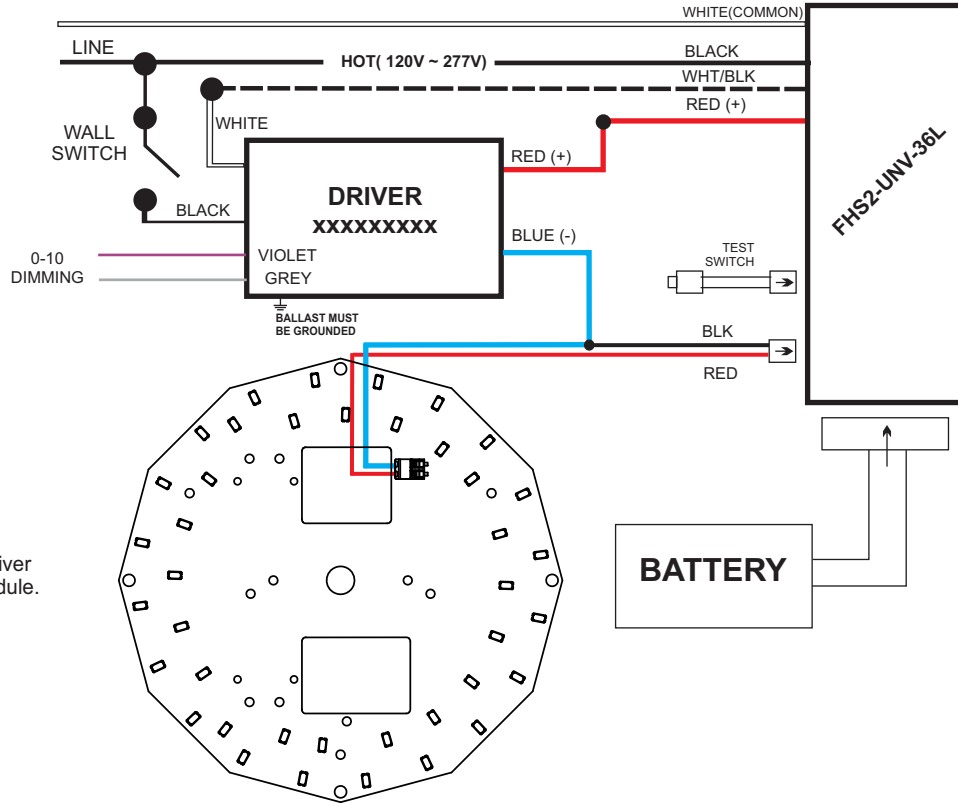
NOTES:

- 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.