

LED RETROFIT CONVERSION KITS

Our LED RetroFit Conversion Kits come with a complete Gear Tray Assembly to convert older 4-foot and 8-foot T8 or T12 “strip-type” fixtures into energy efficient LED luminaires.

- High quality components and attractive design makes the retrofit look like a new LED luminaire at a fraction of the cost.
- Improves the quality, integrity, and sustainability of your lighting system.
- A complete LED lighting upgrade solution reduces energy consumption and improves energy management.
- Delivers high performance lumen output; no need to purchase a new LED luminaire.
- Provides the contractor with ultimate “installation” flexibility.
- The retrofit is fast and easy regardless of “strip-type” fixture brand.

BENEFITS

- ETL Listed to UL Standard 1598C.
- DLC Listed and approved (standard wattage driver only).
- Reduced energy consumption compared to older fluorescent lighting systems.
- High system efficacy.
- 100% Tested and certified before shipping ensures out of the box performance.
- Assembled in the United States.
- Five (5) Year Warranty. 50,000 hours, minimum at L_{70} . For warranty information visit www.engproducts.com.
- Minimal part numbers. Other companies require separate part numbers for various “strip-type” fixture housing widths.

FEATURES

- One-piece construction, compact design, fast and trouble free installation.
- Integral “adjustable” installation brackets accommodate 4.25” (107.95mm) or 5.0” (127mm) “strip-type” fixture housing widths.
- Multi-Voltage Operation — 120/277V input.
- Available in 4000K and 5000K color temperatures.
- Pre-wired at the factory for 0-10V dimming.
- Color Rendering Index (CRI): 80+
- Available in two (2) or three (3) T8 fluorescent lamp equivalents.
- Kits are available with or without the frosted diffuser to meet your application needs.



**LED RETROFIT CONVERSION KIT
(STRIP LED OR T5 OR T8 LED)**

TYPICAL APPLICATIONS:

- Commercial Facilities
- Industrial Facilities
- Storage Rooms
- Warehouses
- Retail Stores
- And more...



LED RETROFIT CONVERSION KITS

ACCESSORIES/OPTIONS

LED RetroFit Installation Tool: The LED RetroFit Installation Tool Kit includes two (2) "labor and time saving" magnetic suspension devices to expedite installation of the gear tray assembly. Supports one man installation when installing 8-foot fixtures.

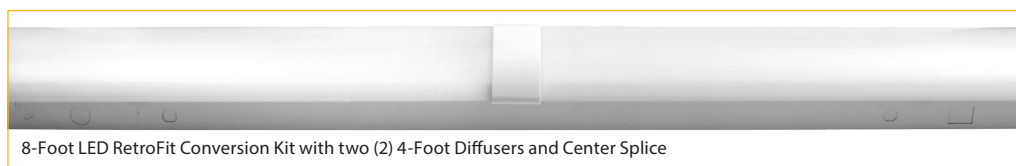
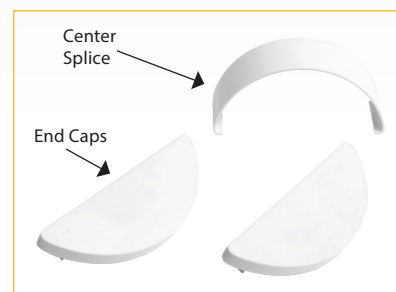
The "round" magnetic end of the tool is attached to the outer ends of the strip fixture housing. The "arrowed" end of the tool is inserted through the slotted holes on each end of the retrofit gear tray, then rotated 90 degrees to hold the gear tray in place while the contractor completes termination of the supply wires to the gear tray.

100% reusable for multiple installation projects, the tool eliminates the use of string, tie wire, nylon straps, or other temporary suspension methods.

Diffuser: The one-piece, "snap-on" polycarbonate UV stabilized frosted diffuser features 2.25" (57.15mm) high contoured shape design that provides even lumen distribution without glare, shadows, or hot spots. Includes two (2) end caps with screws.

- The edges of the diffuser in conjunction with the end caps assure a solid attachment to luminaire's housing with no light leakage.
- The diffuser is easily removable for maintenance or cleaning.

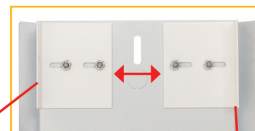
Note: The 8-Foot Diffuser includes two (2) 4-Foot Diffusers, two (2) end caps and a center splice that connects the two (2) Diffusers for a complete install.



Emergency LED Backup Driver: Meets life safety code requirements for Emergency Illumination; provides 90 minutes of emergency egress lighting.

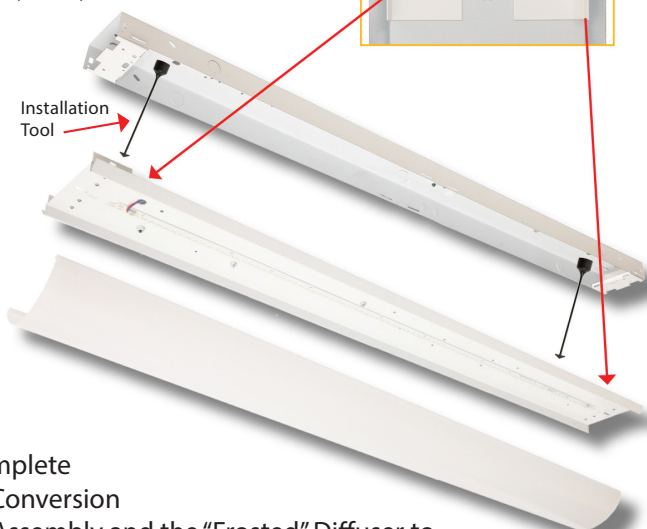
RETROFITTING WITH THE LED RETROFIT CONVERSION KIT (COMPLETE GEAR TRAY ASSEMBLY)

Integral "adjustable" installation brackets, on each end of the gear tray, accommodate 4.25" (107.95mm) or 5.0" (127mm) "strip-type" fixture housing widths. Other companies have separate part numbers for different housing widths.



BEFORE

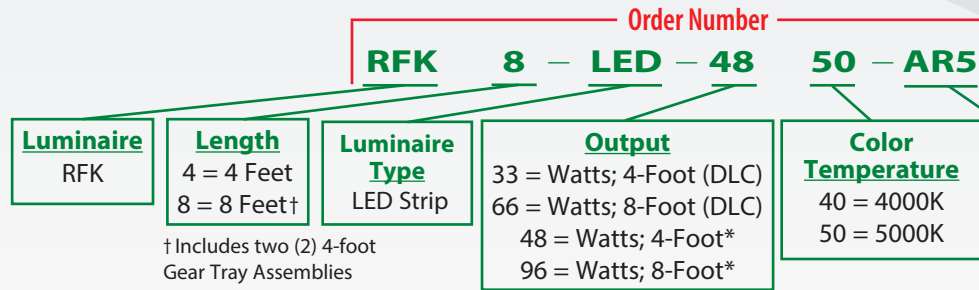
Remove and recycle the fluorescent lamps, ballast cover, lamp holders and ballast from the "strip-type" fixture housing.



AFTER

Install the complete LED RetroFit Conversion Kit Gear Tray Assembly and the "Frosted" Diffuser to the "strip-type" fixture housing and you are done!

CONFIGURATION EXAMPLE — LED STRIP

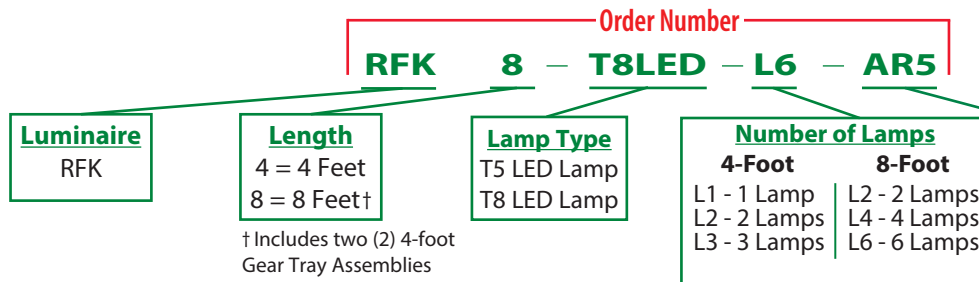


| Watts | Lamp Equivalent | Lumens No Lens | Lumens With Lens | Efficacy No Lens | Efficacy With Lens |
|--------------------------------|-----------------|----------------|------------------|------------------|--------------------|
| 33 = Watts - 4-Foot Luminaire | (2) F32 T8 | 4,393 | 3,954 | 141 | 127 |
| 66 = Watts - 8-Foot Luminaire | (4) F32 T8 | 8,787 | 7,909 | 141 | 127 |
| 48 = Watts - 4-Foot Luminaire* | (3) F32 T8 | 5,600 | 4,920 | 111 | 98 |
| 96 = Watts - 8-Foot Luminaire* | (6) F32 T8 | 11,200 | 9,840 | 111 | 98 |

*Indicates High Wattage LED Driver

CONFIGURATION EXAMPLE — T5 AND T8 LED LAMPS

Note: We recommend using only Type B Single-End Powered Bi-Pin T5 or T8 LED Lamps.



LED RetroFit Conversion Kit Options

The LED RetroFit Conversion Kit Luminaire can be built to your specifications by adding the respective option codes as "part" of your order number.

| Option | Notes |
|---|--|
| A. 4-Foot Frosted Diffuser with End Caps | The "Frosted Diffuser" is an option for all LED RetroFit Conversion Kits and is strongly recommended for ceiling heights less than 15-feet. Two (2) "End Caps" are included with the Diffuser. |
| E. Emergency LED Backup Driver | Non-stock; long lead time. |
| FH4. 4-Foot Fixture Housing | |
| FH8. 8-Foot Fixture Housing | |
| R4. Microwave Occupancy Sensor (On/Off Only) R5. Microwave Occupancy Sensor (0-10V Dimming 30%) R6. Microwave Occupancy Sensor (0-10V Dimming 50%) | Recommended for ceiling heights 15-feet or lower. The microwave sensor detects the slightest movement in the occupancy zone. Detection is sensed through doors, glass, or thin walls. |
| Z. Bulk Packaging | 25 or 50 per skid (eliminates individual carton packaging on the job site) |

LED RETROFIT CONVERSION KITS

LED DRIVER SPECIFICATIONS

| Electrical Specifications | Standard Wattage* | High Wattage |
|--------------------------------|---|--|
| Input Voltage | 120 - 277 VAC | 120 - 277 VAC |
| Input Frequency | 60/50 Hz | 60/50 Hz |
| Power Factor | > 0.9 @ Full Load; 120 through 277V | > 0.9 @ Full Load; 120 through 277V |
| Inrush Current | 20 Amps @ 230 Volts | 10.3 Amps @ 120 Volts; 17.5 Amps @ 277 Volts |
| Output Power | 35-Watts | 55-Watts |
| Total Harmonic Distortion | 20% or less | 20% or less |
| Protection | Overvoltage, Over Current and Short Circuit | Overvoltage, Over Current and Short Circuit |
| Dimming Capability | 10% of Total Output Power; 0 through 10V | 10% of Total Output Power; 0 through 10V |
| Environmental Specifications | | |
| Operating Temperature | -4°F (-20°C) to 122°F (50°C) | -4°F (-20°C) to 122°F (50°C) |
| Applications | Damp and Dry Locations | Damp and Dry Locations |
| Certifications | | |
| Underwriters Laboratories (UL) | UL 8750 | UL 8750 |
| FCC Part 15 | Class B Consumer Limits | Class A Non-Consumer Limits |

*DLC Listed and Approved.

CASE STUDY - LIGHT LEVELS FOR EPCO PRODUCTION AND PACKAGING AREA

| Location | Pre-Retrofit | Post-Retrofit (with Lens) | Change |
|---------------------------|--------------|---------------------------|---------------|
| Fixture Whip Table | 8.3 FC | 9.0 FC | 8% Increase |
| Floor | 9.1 | 8.3 | 33% increase |
| AC Whip Assembly Table #1 | 8.0 | 9.3 | 16% Increase |
| AC Whip Assembly Table #2 | 7.6 | 8.6 | 13% Increase |
| Stairs | 3.0 | 6.2 | 200% Increase |



Fixture Whip Table



AC Whip Assembly Table



Stairs

LED RETROFIT CONVERSION KIT PART NUMBERS

| Catalog Number | UPC Number | Description | Order Unit | Order Qty | Unit Pkg | Units/ Case | TL Case Qty | Min Order Qty | MM Req | Ship Wt (Lbs) |
|--|------------|---|------------|-----------|----------|-------------|-------------|---------------|--------|---------------|
| LED RetroFit Conversion Kits LED Strip | | | | | | | | | | |
| RFK4-LED-3340 | 14036 | LED RetroFit Conversion Kit: for 4-FT Strip Fixture Housing, 33-Watts 4000K, Adjustable Width: 4.25" to 5". | EA | 1 | BX | 1 | 1 | 1 | No | 9 |
| RFK4-LED-3340-A | 14037 | LED RetroFit Conversion Kit: for 4-FT Strip Fixture Housing, 33-Watts 4000K, Adjustable Width: 4.25" to 5". Includes Snap On Frosted Diffuser | EA | 1 | BX | 1 | 1 | 1 | No | 11 |
| RFK4-LED-3350 | 14034 | LED RetroFit Conversion Kit: for 4-FT Strip Fixture Housing, 33-Watts 5000K, Adjustable Width: 4.25" to 5". | EA | 1 | BX | 1 | 1 | 1 | No | 9 |
| RFK4-LED-3350-A | 14035 | LED RetroFit Conversion Kit: for 4-FT Strip Fixture Housing, 33-Watts 5000K, Adjustable Width: 4.25" to 5". Includes Snap On Frosted Diffuser | EA | 1 | BX | 1 | 1 | 1 | No | 11 |
| RFK4-LED-4840 | 14006 | LED RetroFit Conversion Kit: for 4-FT Strip Fixture Housing, 48-Watts 4000K, Adjustable Width: 4.25" to 5". | EA | 1 | BX | 1 | 1 | 1 | No | 9 |
| RFK4-LED-4840-A | 14007 | LED RetroFit Conversion Kit: for 4-FT Strip Fixture Housing, 48-Watts 4000K, Adjustable Width: 4.25" to 5". Includes Snap On Frosted Diffuser | EA | 1 | BX | 1 | 1 | 1 | No | 11 |
| RFK4-LED-4850 | 14004 | LED RetroFit Conversion Kit: for 4-FT Strip Fixture Housing, 48-Watts 5000K, Adjustable Width: 4.25" to 5". | EA | 1 | BX | 1 | 1 | 1 | No | 9 |
| RFK4-LED-4850-A | 14005 | LED RetroFit Conversion Kit: for 4-FT Strip Fixture Housing, 48-Watts 5000K, Adjustable Width: 4.25" to 5". Includes Snap On Frosted Diffuser | EA | 1 | BX | 1 | 1 | 1 | No | 11 |
| RFK8-LED-6640 | 14030 | LED RetroFit Conversion Kit: for 8-FT Strip Fixture Housing, 66-Watts 4000K, Adjustable Width: 4.25" to 5". | EA | 1 | BX | 1 | 1 | 1 | No | 18 |
| RFK8-LED-6640-A | 14031 | LED RetroFit Conversion Kit: for 8-FT Strip Fixture Housing, 66-Watts 4000K, Adjustable Width: 4.25" to 5". Includes Snap On Frosted Diffuser | EA | 1 | BX | 1 | 1 | 1 | No | 21 |
| RFK8-LED-6650 | 14032 | LED RetroFit Conversion Kit: for 8-FT Strip Fixture Housing, 66-Watts 5000K, Adjustable Width: 4.25" to 5". | EA | 1 | BX | 1 | 1 | 1 | No | 18 |
| RFK8-LED-6650-A | 14033 | LED RetroFit Conversion Kit: for 8-FT Strip Fixture Housing, 66-Watts 5000K, Adjustable Width: 4.25" to 5". Includes Snap On Frosted Diffuser | EA | 1 | BX | 1 | 1 | 1 | No | 21 |
| RFK8-LED-9640 | 14028 | LED RetroFit Conversion Kit: for 8-FT Strip Fixture Housing, 96-Watts 4000K, Adjustable Width: 4.25" to 5". | EA | 1 | BX | 1 | 1 | 1 | No | 18 |
| RFK8-LED-9640-A | 14029 | LED RetroFit Conversion Kit: for 8-FT Strip Fixture Housing, 96-Watts 4000K, Adjustable Width: 4.25" to 5". Includes Snap On Frosted Diffuser | EA | 1 | BX | 1 | 1 | 1 | No | 21 |
| RFK8-LED-9650 | 14014 | LED RetroFit Conversion Kit: for 8-FT Strip Fixture Housing, 96-Watts 5000K, Adjustable Width: 4.25" to 5". | EA | 1 | BX | 1 | 1 | 1 | No | 18 |
| RFK8-LED-9650-A | 14015 | LED RetroFit Conversion Kit: for 8-FT Strip Fixture Housing, 96-Watts 5000K, Adjustable Width: 4.25" to 5". Includes Snap On Frosted Diffuser | EA | 1 | BX | 1 | 1 | 1 | No | 21 |
| LED RetroFit Conversion Kits Using T8 LED Lamps | | | | | | | | | | |
| RFK4-T8LED-L1* | 14008 | T8 LED RetroFit Conversion Kit: for 4-FT Strip Fixture Housing, one (1) Lamp, Adjustable Width: 4.25" to 5" | EA | 1 | BX | 1 | 1 | 1 | No | 7 |
| RFK4-T8LED-L2* | 14010 | T8 LED RetroFit Conversion Kit: for 4-FT Strip Fixture Housing, two (2) Lamp, Adjustable Width: 4.25" to 5" | EA | 1 | BX | 1 | 1 | 1 | No | 7 |
| RFK4-T8LED-L3* | 14009 | T8 LED RetroFit Conversion Kit: for 4-FT Strip Fixture Housing, three (3) Lamp, Adjustable Width: 4.25" to 5" | EA | 1 | BX | 1 | 1 | 1 | No | 7 |
| RFK8-T8LED-L2* | 14012 | T8 LED RetroFit Conversion Kit: for 8-FT Strip Fixture Housing, two (2) Lamp, Adjustable Width: 4.25" to 5" | EA | 1 | BX | 1 | 1 | 1 | No | 13 |
| RFK8-T8LED-L4* | 14011 | T8 LED RetroFit Conversion Kit: for 8-FT Strip Fixture Housing, four (4) Lamp, Adjustable Width: 4.25" to 5" | EA | 1 | BX | 1 | 1 | 1 | No | 13 |
| RFK8-T8LED-L6* | 14013 | T8 LED RetroFit Conversion Kit: for 8-FT Strip Fixture Housing, six (6) Lamp, Adjustable Width: 4.25" to 5" | EA | 1 | BX | 1 | 1 | 1 | No | 13 |
| Note: Also available for T5 LED Lamps. Contact our Inside Sales Department (sales@engproducts.com or 800.336.1976). | | | | | | | | | | |
| LED RetroFit Conversion Kit Accessories/Options | | | | | | | | | | |
| RFK-TOOL | 14019 | LED RetroFit Conversion Kit Installation Tool | EA | 1 | BG | 2 | 2 | 2 | Yes | 1 |
| RFK4-LENS | 14039 | Replacement Frosted Acrylic Diffuser: for 4-FT Strip Fixture | EA | 1 | BX | 1 | 1 | 1 | Yes | 2 |
| RFK8-LENS | 14038 | Replacement Frosted Acrylic Diffuser: for 8-FT Strip Fixture. Includes two (2) 4-FT Diffusers joined together by two (2) Tinnerman Clips | EA | 1 | BX | 1 | 1 | 1 | Yes | 3 |

***Note:** We recommend using only Type B Single-End Powered Bi-Pin T5 or T8 LED Lamps.

UNITS OF MEASURE KEY

Order Unit: The Unit to be ordered; Order Qty: Number of pieces in each Unit; Unit Pkg: Packaging types - BG (Bag), BX (Box), BN (Bulk); Units/Case: Unit packages contained in the Case; TL Case Qty: The total number of items in each Master Case; Min Order Qty: The smallest Unit that can be ordered; MM Req: Must order multiples of the Unit in the stated quantities; Ship Wt (Lbs): Total weight of the units per Carton
Specifications subject to change without prior notice.

LED RETROFIT CONVERSION KITS

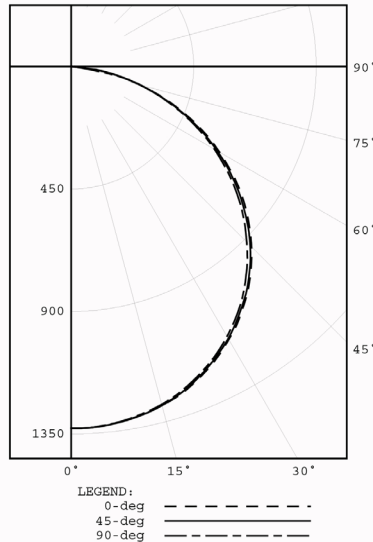
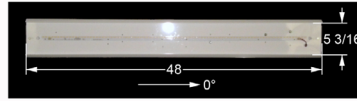
PHOTOMETRICS FOR LED RETROFIT CONVERSION KITS

LED RetroFit Conversion Kit — LED Strip without Frosted Diffuser

| CANDELA DISTRIBUTION | | | | | | FLUX |
|----------------------|------|------|------|------|------|------|
| | 0.0 | 22.5 | 45.0 | 67.5 | 90.0 | |
| 0 | 1329 | 1329 | 1329 | 1329 | 1329 | 126 |
| 5 | 1325 | 1325 | 1326 | 1326 | 1325 | |
| 15 | 1289 | 1282 | 1289 | 1289 | 1285 | 363 |
| 25 | 1213 | 1199 | 1208 | 1209 | 1202 | 556 |
| 35 | 1094 | 1081 | 1088 | 1084 | 1079 | 679 |
| 45 | 937 | 928 | 930 | 918 | 912 | 713 |
| 55 | 742 | 735 | 730 | 721 | 716 | 651 |
| 65 | 512 | 509 | 503 | 495 | 493 | 496 |
| 75 | 265 | 262 | 260 | 260 | 260 | 276 |
| 85 | 50 | 56 | 4 | 5 | 5 | 44 |
| 90 | 0 | 1 | 0 | 0 | 0 | 0 |
| 95 | 0 | 0 | 0 | 0 | 0 | 0 |
| 105 | 0 | 0 | 0 | 0 | 0 | 0 |
| 115 | 0 | 0 | 0 | 0 | 0 | 0 |
| 125 | 0 | 0 | 0 | 0 | 0 | 0 |
| 135 | 0 | 0 | 0 | 0 | 0 | 0 |
| 145 | 0 | 0 | 0 | 0 | 0 | 0 |
| 155 | 0 | 0 | 0 | 0 | 0 | 0 |
| 165 | 0 | 0 | 0 | 0 | 0 | 0 |
| 175 | 0 | 0 | 0 | 0 | 0 | 0 |
| 180 | 0 | 0 | 0 | 0 | 0 | 0 |

| ZONAL LUMEN SUMMARY | | |
|---------------------|--------|-------|
| ZONE | LUMENS | %FIXT |
| 0- 30 | 1045 | 26.8 |
| 0- 40 | 1724 | 44.2 |
| 0- 60 | 3088 | 79.1 |
| 0- 90 | 3904 | 100.0 |
| 90-120 | 0 | 0.0 |
| 90-130 | 0 | 0.0 |
| 90-150 | 0 | 0.0 |
| 90-180 | 0 | 0.0 |
| 0-180 | 3904 | 100.0 |

EFFICACY = 113.8 lm/W
CIE TYPE - DIRECT
PLANE : 0-DEG 90-DEG
SPACING CRITERIA : 1.29 1.28
BEAM ANGLE (50%) : 116.8 X 114.7 DEGREES
FIELD ANGLE (10%) : 161.5 X 158.5 DEGREES

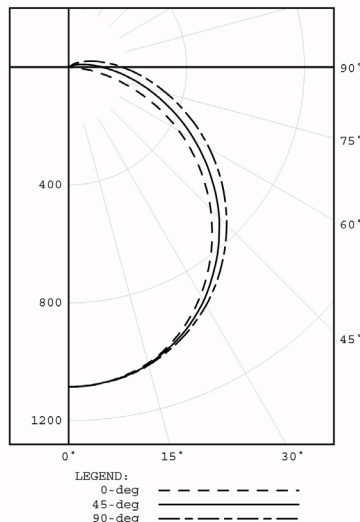
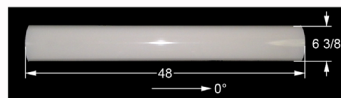


LED RetroFit Conversion Kit — LED Strip with Frosted Diffuser

| CANDELA DISTRIBUTION | | | | | | FLUX |
|----------------------|------|------|------|------|------|------|
| | 0.0 | 22.5 | 45.0 | 67.5 | 90.0 | |
| 0 | 1084 | 1084 | 1084 | 1084 | 1084 | 103 |
| 5 | 1080 | 1080 | 1080 | 1080 | 1080 | |
| 15 | 1040 | 1035 | 1044 | 1048 | 1047 | 294 |
| 25 | 953 | 947 | 967 | 977 | 978 | 444 |
| 35 | 829 | 830 | 855 | 874 | 880 | 534 |
| 45 | 681 | 688 | 722 | 749 | 758 | 555 |
| 55 | 517 | 529 | 570 | 608 | 622 | 509 |
| 65 | 345 | 364 | 416 | 463 | 480 | 410 |
| 75 | 173 | 208 | 273 | 326 | 344 | 282 |
| 85 | 31 | 84 | 158 | 210 | 229 | 161 |
| 90 | 0 | 44 | 113 | 163 | 181 | 81 |
| 95 | 0 | 21 | 78 | 123 | 140 | 38 |
| 105 | 0 | 4 | 33 | 65 | 78 | 15 |
| 115 | 0 | 0 | 11 | 29 | 37 | 5 |
| 125 | 0 | 0 | 3 | 10 | 14 | 1 |
| 135 | 0 | 0 | 1 | 2 | 4 | 0 |
| 145 | 0 | 0 | 0 | 0 | 1 | 0 |
| 155 | 0 | 0 | 0 | 0 | 0 | 0 |
| 165 | 0 | 0 | 0 | 0 | 0 | 0 |
| 175 | 0 | 0 | 0 | 0 | 0 | 0 |
| 180 | 0 | 0 | 0 | 0 | 0 | 0 |

| ZONAL LUMEN SUMMARY | | |
|---------------------|--------|-------|
| ZONE | LUMENS | %FIXT |
| 0- 30 | 841 | 24.5 |
| 0- 40 | 1375 | 40.1 |
| 0- 60 | 2439 | 71.0 |
| 0- 90 | 3292 | 95.9 |
| 90-120 | 135 | 3.9 |
| 90-130 | 139 | 4.1 |
| 90-150 | 141 | 4.1 |
| 90-180 | 141 | 4.1 |
| 0-180 | 3433 | 100.0 |

EFFICACY = 100.1 lm/W
CIE TYPE - DIRECT
PLANE : 0-DEG 90-DEG
SPACING CRITERIA : 1.23 1.28
BEAM ANGLE (50%) : 107.0 X 121.3 DEGREES
FIELD ANGLE (10%) : 158.1 X 199.3 DEGREES



Luminaire Quality Metrics LM-79 Report

EPCO's LM-79 Report captures the LED RetroFit Conversion Kit's overall electrical characteristics and photometric measurements (lumen output) performance. This report is a snapshot of spatial distribution of light and color attributes under specified operating conditions. This report does not address lifetime ratings for the LED RetroFit Conversion Kit, or changing performance over time (e.g., lumen maintenance).

Most important, EPCO's LM-79 data is intended to provide you with objective retrofit product evaluation comparisons relative to the LED RetroFit Conversion Kit's performance requirements.

LM-80 and TM-21 Reports available upon request!

E02-150-012 C1 (12/18-BB)

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Specifications subject to change without prior notice.



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