



TRMUNV065EC8XXA



Universal Voltage LED Canopy Retrofit Kit

- Retrofit Kit Suitable for Canopy, Parking Garage Luminaires
- Suitable replacement for applications using 250W HID
- Instant On/Off, no cool down time needed
- Driver Surge Rating: L-N 2kV, L&N-G 4kV
- Integrated Thermal Management for optimal performance
- Programmable Driver, allowing flexibility of power and lumen output
- Compatible with 0-10V sensor
- Available in 4000K/5000K and 80CRI
- UL Classified for Field Installation
- DesignLights Consortium Qualified system

General Specifications

Input Voltage ^①	120-277VAC; 50/60 Hz
Input Current ^①	0.54A (Max.)
Input Power ^①	65W
Input PF	>0.97
THD	<10%
Module Operating Voltage	55.3V @ 1.05A
Max Lumen Output @ Full Power	8,700 lumens @ 4000K / 80 CRI
Dimming Type/Range	TRMUNV065EC8XXA: 0-10V Dimming; 100%-0%
Beam Angle	160°
CRI	80 (Standard)
Storage Temperature Range	-20 to +90°C / -4 to +194°F
Operating Ambient Temperature Range (Ta)	-20 to +45°C / -4 to +113°F
Maximum Driver Case Temperature (Tc)	88°C: 22,000hrs Service Life / 80°C: 50,000hrs Service Life
Maximum Module Case Temperature (Tc)	L70 = 100°C (Ts = 105°C) / L90 = 100°C (Ts = 105°C)
Estimated Lumen Maintenance ^②	L70 = >51,000hrs / L90 = >51,000hrs
Color Consistency	Binning per ANSI C78.377-2015 @ 85°C; 5 SDCM
Overall Size	10" Dia x 1.26" H
Weight	1.63 lbs
Packaging: Carton / Master Carton	1pc / 10pcs
Driver Part Number	T1M1UNV105P-60F
DC Module Part Number	TMU150085ECXYA
Maximum Screw Installation Torque	35in-lb (560in-ozf)
Safety/Compliance	Driver: cURus (E342838: T1M1UNV105P-60F) Module: cURus (E351548: TMU150085ECXYA) Retrofit Kit: cULus (E3486779: TRMUNV065EC8XXA) DLC 4.2: Outdoor Canopy Retrofit (I.D: PUVVMB00) (4K) DLC 4.2: Outdoor Canopy Retrofit (I.D: PQ5O93CU) (5K) LED Class 2 Lighting System Dry or Damp Locations Driver Surge Protection: L-N 2kV, L&N-G 4kV RoHS compliant
RFI/EMI	FCC Part 15B Consumer, EN55015
Sound Rating / Noise	A / <24dBA
Percent Flicker / Flicker Index	<3% / <0.15
Thermal Feedback	Yes
Service Life	50,000hrs @ Ta ≤ 45°C (Tc mod ≤ 90°C; Tc driver ≤ 80°C)
Warranty	5 years @ Max. Tc from date of manufacture

^① Measured electrical data per UL file

^② TM-21 Reported Numbers



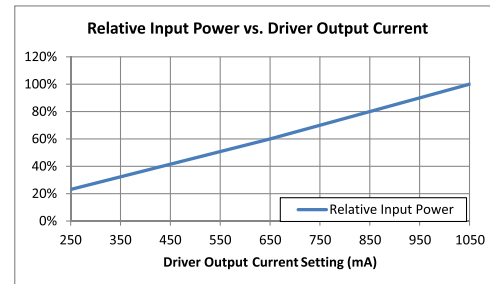
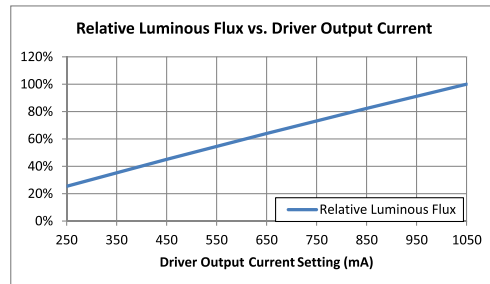
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Electrical and Optical Specifications

CCT & CRI	Retrofit Kit	Driver Output Current Setting	Input Power	Nominal Luminous Flux	Efficacy
4000K /80CRI	TRMUNV065EC840A	1050mA (Max./Default)	65W	8,700 lumens	134 lm/W
		850mA	52W	7,165 lumens	138 lm/W
		650mA	39W	5,570 lumens	142 lm/W
		450mA	27W	3,925 lumens	145 lm/W
		250mA (Min.)	15W	2,210 lumens	147 lm/W

Luminous Flux & Input Power vs. Output Current

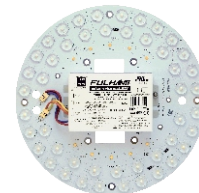


CCT & CRI vs. Luminous Flux

	2700K	3000K	3500K	4000K	5000K	5700K
CRI 70	N/A	1.05	1.05	1.10	1.10	1.10
CRI 80(R9> 0)	0.94	0.94	1.00	1.00	1.05	1.05
CRI 90(R9>50)	0.77	0.77	0.77	0.82	0.82	0.82

NOTES:

- 1) All retrofit kits are programmed to the max. 1050mA driver output.
- 2) Performance based on Tc mod = 25°C. See thermal de-rating chart (pg. 3) for higher temperature operation.
- 3) Standard lumen output and efficacy is calculated for standard options. Reference CCT & CRI vs Luminous Flux chart for lumen ratio calculation.
- 4) Specifications are subject to change without notice.



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Thermal Specifications

Storage Temperature Range	-20 to +90°C / -4 to 194°F
Operating Ambient Temperature Range	-20 to +45°C / -4 to 113°F
Maximum Driver Case Temperature (Tc) ^①	88°C / 190.4°F
Maximum Module Case Temperature (Tc) ^②	L70 = 80°C (Ts = 85°C) / L90 = 100°C (Ts = 105°C)



Tc located on module



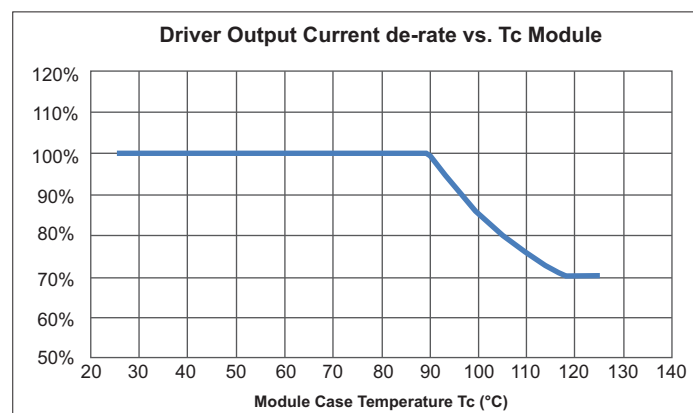
Tc located on driver

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

Module Case Temperature (Tc)	Luminous Flux Multiplier
25°C	1.000
30°C	0.990
35°C	0.981
40°C	0.973
45°C	0.964
50°C	0.956
55°C	0.947
60°C	0.939
65°C	0.931
70°C	0.922
75°C	0.914
80°C	0.905
85°C	0.897
90°C	0.888
95°C	0.880
100°C	0.872

^① Refer to LED Engine Retrofit Kit Installation Instructions for further detail. This LED Engine Kit can retrofit any similar designed shaped luminaire with volume greater or equal to the minimum dimensions shown on the Installation Instructions (15" Diameter x 11.75") with a minimum mounting surface of 11" Diameter. This LED Engine Kit can be used with luminaires similar to the one illustrated on the Installation Instructions.

^② Driver Tc max. 88°C for 22,000hrs service life; Module Tc max. 80°C for 50,000hrs service life.



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Certification Chart

Energy Star™ TM-21 Calculator Data

Model	TRMUNV065ECxxxA
Classification	
	YES
	Driver: T1M1UNV105P-60F Module: TMU150085ECXYA
	YES
	YES

Tc Module	Reported L70	Reported L90
80°C	>54,000 Hrs	>54,000 Hrs
100°C	>51,000 Hrs	>51,000 Hrs
115°C	>36,000 Hrs	14,000 Hrs

Tc Module	Calculated L70	Calculated L90
80°C	2,750,000 Hrs	776,800 Hrs
100°C	550,000 Hrs	104,700 Hrs
115°C	54,000 Hrs	14,300 Hrs

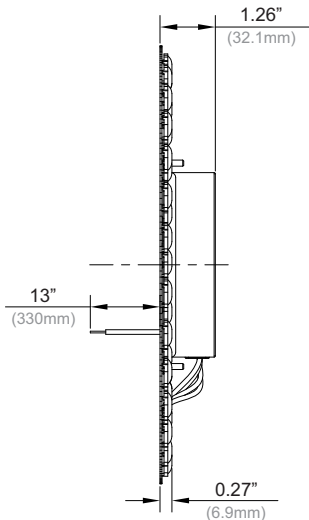
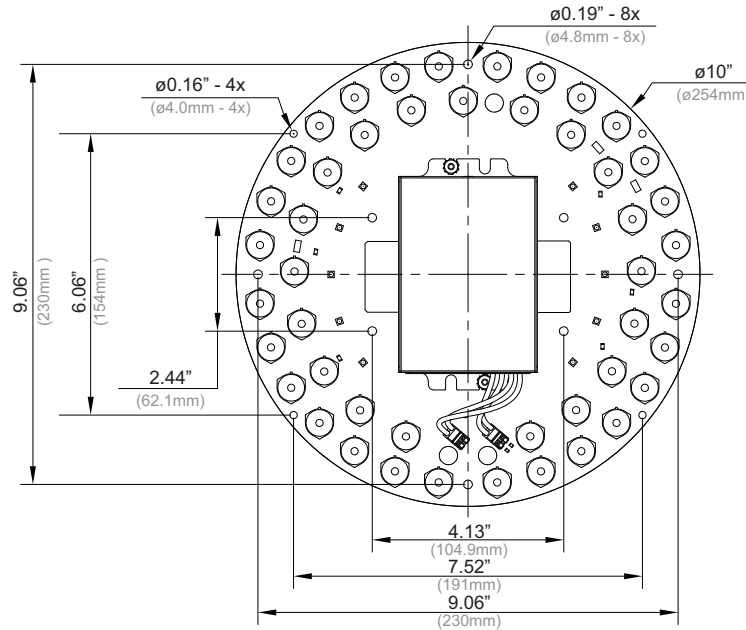


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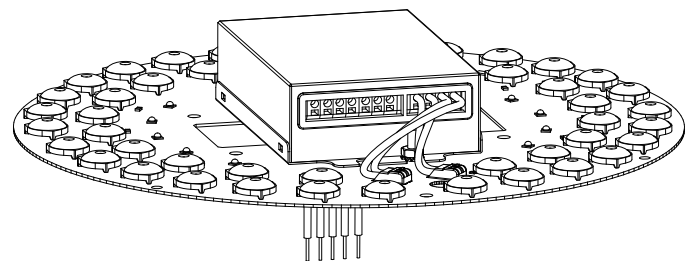


Mechanical Drawing

TOP VIEW



SIDE VIEW



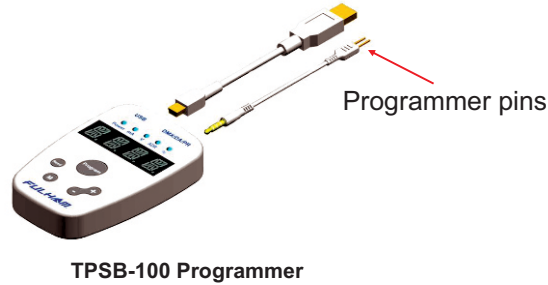
ISOMETRIC VIEW

Wire Function	- Color (Polarity)	Wire Length
AC Input	- Black (L) / White (N)	13 inches
Grounding	- Yellow_Green (G)	13 inches
Dimming(0-10V)	- Purple (+) / Gray (-)	13 inches

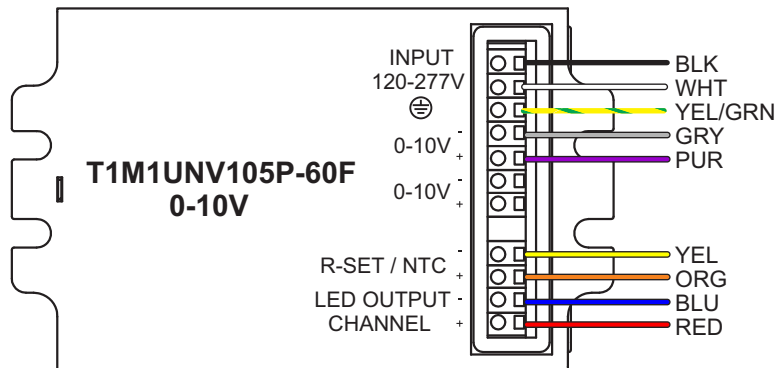
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Reprogramming Instructions:

To program use the Fulham programmer TPSB-100



- Connect the TPSB-100 Programmer pins to the LED driver's leads, Orange and Yellow.



Follow the instructions per the following links:

- Fulham Design Guide Programmable Drivers:
<https://cdn.fulham.com/PDFs/SpecSheets/Fulham-Design-Guide-Programmable-Drivers.pdf>
- Fulham Programmable LED Drivers: Auto Program Demo:
https://www.youtube.com/watch?v=vQhZOrC_FGY
- Programming via handheld controller or PC software:
<https://cdn.fulham.com/PDFs/Fulham-WorkHorseLED-Extreme.pdf>

WARNING

To prevent damage to the LED driver, the R-set / NTC / PRG inputs (Orange and Yellow) must never make contact with LED output (Red and Blue).

NOTES:

- 1) Contact Fulham for Pre-programming options done at the factory
- 2) Driver DOES NOT need to be powered during programming



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Canopy Retrofit Kit Equivalency Chart

Canopy Retrofit Kit									HID										
Retrofit Kit Part Number	System Wattage (W)	Initial Lumen Output (lm)	Mean Lumens (lm)	CRI	Efficacy (lm/W)	SP Ratio	Initial Visually Effective Lumens (Vels)	Mean Visually Effective Lumens (Vels)	HID Type	Lamp Wattage	# of Lamps	System Wattage (W)	Initial Lumen Output (lm)	Mean Lumens (lm)	CRI	Efficacy (lm/W)	SP Ratio	Initial Visually Effective Lumens (Vels)	Mean Visually Effective Lumens (Vels)
TRMUNV065EC840A	39	5570	3899	80	142	2	11140	7798	LPS	180	1	200	33000	19800	20	130	0.25	8250	4950
TRMUNV065EC840A	27	3925	2748	80	147	2	7850	5495	LPS	135	1	155	22500	13500	20	130	0.25	5625	3375
TRMUNV065EC840A	65	8700	6090	80	134	2	17400	12180	HPS	310	1	340	37000	22200	20	108	0.62	22940	13764
TRMUNV065EC840A	52	7165	5016	80	138	2	14330	10031	HPS	250	1	275	28000	16800	20	110	0.62	17360	10416
TRMUNV065EC840A	52	7165	5016	80	138	2	14330	10031	HPS	200	1	220	22000	22200	20	100	0.62	13640	8184
TRMUNV065EC840A	39	5570	3899	80	142	2	11140	7798	HPS	150	1	275	16000	13200	20	110	0.62	9920	5952
TRMUNV065EC840A	27	3925	2748	80	147	2	7850	5495	HPS	100	1	120	9500	9600	20	80	0.62	5890	3534
TRMUNV065EC840A	65	8700	6090	80	134	2	17400	12180	MV	400	1	450	23000	13800	45	50	1.08	24840	14904
TRMUNV065EC840A	52	7165	5016	80	138	2	14330	10031	MV	250	1	270	12500	7500	45	45	1.08	13500	8100
TRMUNV065EC840A	39	5570	3899	80	142	2	11140	7798	MV	175	1	205	8400	5040	45	45	1.08	9072	5443
TRMUNV065EC840A	27	3925	2748	80	147	2	7850	5495	MV	100	1	120	4100	2460	45	40	1.08	4428	2657
TRMUNV065EC840A	65	8700	6090	80	134	2	17400	12180	MH	200	1	220	19000	11400	65	80	1.49	28310	16986
TRMUNV065EC840A	65	8700	6090	80	134	2	17400	12180	MH	175	1	205	14000	8400	50	80	1.49	20860	12516
TRMUNV065EC840A	52	7165	5016	80	138	2	14330	10031	MH	150	1	170	12500	7500	50	80	1.49	18625	11175
TRMUNV065EC840A	39	5570	3899	80	142	2	11140	7798	MH	100	1	120	8000	4800	50	80	1.49	11920	7152
TRMUNV065EC840A	27	3925	2748	80	147	2	7850	5495	MH	70	1	90	6000	3600	50	80	1.49	8940	5364

NOTES:

- 1) Calculations done with initial and mean lumen output at light source level.
- 2) The scotopic/photopic ratio, or S/P ratio, is a multiplier that measures how much light is useful to the human eye (Photoreceptors rod and Cones). A lamp with a higher S/P ratio, like LEDs, will provide illumination as well as better color rendering.
- 3) Visual Effective Lumens (Vels) is obtained by multiplying the lumens with the SP ratio of the light source.
<http://www.lrc.rpi.edu/programs/solidstate/assist/pdf/AR-VisualEfficacy-Jan2009.pdf>



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Canopy with Emergency Options

Canopy Retrofit Kit	Emer. Driver Part Number	Wattage	Battery Part Number	Harness (mA)	Total Vf (V)	Total Power (W)	Total Lum. Output (lm)	Eff. (lm/W)
TRMUNV065EC840A	FHS2-UNV-56S	8	FHSBATL9-6	FHS-HARNESS-150	50.4	7.6	1200	159
		14	FHSBATL6-1.5L	FHS-HARNESS-250	51.1	12.8	2190	171
		16	FHSBATL3-3	FHS-HARNESS-300	51.4	15.4	2740	178
		20	FHSBATL6-3L	FHS-HARNESS-350	51.6	18.1	3160	175
	FHSAC1-UNV-40C/L/BLS	Normal Operation:						
		21	N/A	Prog. To 400mA	51.9	20.8	3545	171
		27	N/A	Prog. To 500mA	52.4	26.2	4330	165
		32	N/A	Prog. To 600mA	52.8	31.7	5155	163
		38	N/A	Prog. To 700mA	53.1	37.2	5930	160
		Emergency Operation:						
		5	N/A	N/A	49.9	5.0	770	154
		10	N/A	N/A	50.7	10.0	1715	172
	FHSCP-UNV-5WL	5	N/A	At 100 mA	49.9	5.0	770	154

NOTES:

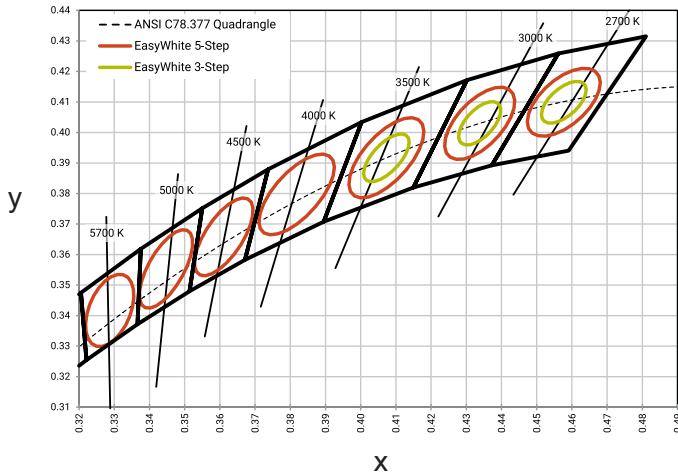
- 1) For reference only, several factors apply.
- 2) Emergency systems are not UL classified for field installation.



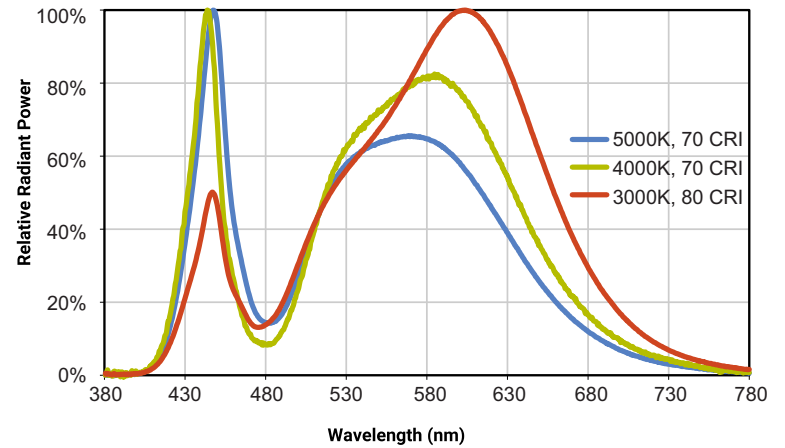
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Color and Binning



Optical Spectrum



NOTES:

- 1) The Color and Binning and Optical Spectrum charts are for reference only. For more detailed info, contact factory.
- 2) Reference Cree Chromaticity Diagram for Color and Binning. Binning per ANSI C78.377-2015 @ 85°C; 5 SDCM.
- 3) The Optical Spectrum values vary depending on product type and color rank.



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Guidelines

Instruction Sheets

- Refer to Instruction Sheet for detailed Step by Step Installation.

Environmental Rating

- Rated for Dry or Damp locations.

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.

Wiring

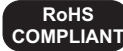
- Intended for Universal Voltage (UNV) application.
- Connect the Black wire from the LED Driver to the building Line by using the proper connectors or wire nuts.
- Connect the White wire from the LED Driver to the building/source Neutral by using the proper connectors or wire nuts.
- Luminaire must be grounded.
- Please refer to page #5 and Instruction Sheet for further details.

Light Distribution

- Type 5 distribution
- Optical lenses used to direct light levels at 60~80 degrees.
 - 60~80degrees more than 30% of Total flux
 - 70~80degrees less than 25% of Total flux



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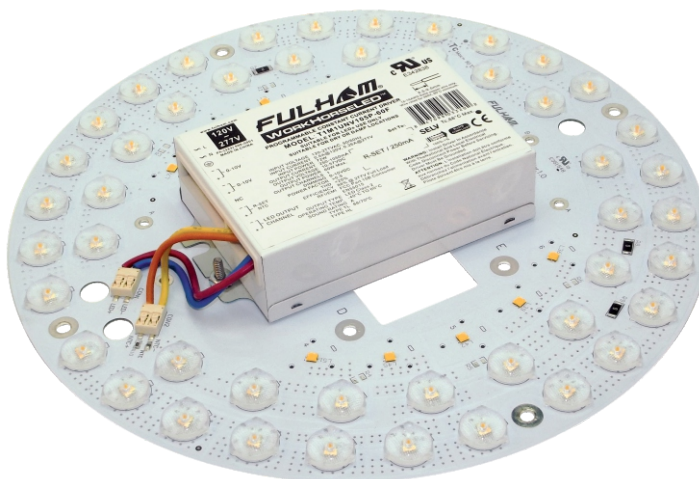
Part Number Matrix

T **R** **M** **UNV** **065** **E** **C** **8** **40** **A**

Compliance: **R** = DC Engine Retrofit Kit (UL Classified)
Control Type: **M** = 0-10V
Input Voltage: **UNV** = 120-277VAC
Max. Input Power: **065** = 65W
PCB Material: **E** = FR-4 + Connector
Shape: **C** = Circular
CRI: **8** = 80
Color Temperature: **40** = 4000K
50 = 5000K

③ Standard Product offering (All other options are made to order with MOQ and lead time)

Product Image: LED Canopy Kit



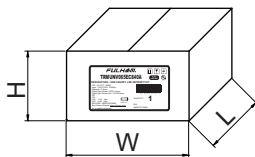
Actual Retrofit Kit Product

NOTES:

- 1) Retrofit Kit includes: LED Engine, Hardware, Labels and Installation Instructions.
- 2) Refer to Installation Instructions for details.

Packaging

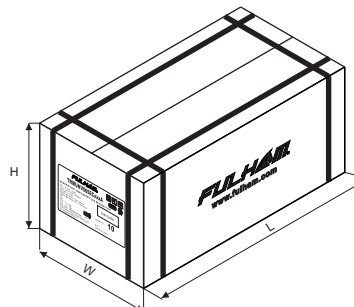
Carton



One (1) Canopy retrofit kit inside each carton.

OUTER DIMENSION		
L	W	H
11.02"(280mm)	10.63"(270mm)	1.69"(43mm)
Net Weight	Gross Weight	QUANTITY
1.63 lbs (0.74kg)	1.94 lbs (0.88kg)	1pc.

Master Carton



Ten (10) cartons inside each Master Carton.

OUTER DIMENSION		
L	W	H
22.40"(569mm)	11.57"(294mm)	10.03"(255mm)
Net Weight	Gross Weight	QUANTITY
16.31 lbs (7.4kg)	21.56 lbs (9.8kg)	10pcs.