



VJTUNV034AC9TWB



9" Round VividHorse 120/230/277VAC Power & CCT Selectable AC Engine Retrofit Kit

- 120/230/277V input AC Engine Retrofit Kit
- Power Selectable: 26W/30W/34W (Factory Default 34W)
- CCT Selectable: 2700K, 3000K(Default), 3500K, 4000K, 5000K
- CRI90 standard
- Potassium Fluorosilicate (PFS) phosphor LEDs to achieve as high efficacy as today's CRI80 LEDs
- 5VA flame rated lens included
- cULus Classified Retrofit Kit per UL1598C standard
- Compatible with Fulham emergency solutions
- Suitable for closed type luminaires
- Suitable for luminaires with plastic and glass lenses

General Specifications

Input Voltage / Frequency ^①	120/230/277VAC, 50/60Hz
Input Current ^①	120VAC: ~0.229A / 0.264A / 0.299A 230VAC: ~0.092A / 0.110A / 0.124A 277VAC: ~0.099A / 0.115A / 0.130A
Input Power ^②	120VAC: 26W / 30W / 34W Selectable 230VAC: 20W / 24W / 27W Selectable 277VAC: 26W / 30W / 34W Selectable
Input PF	>0.9
THD	<45%
Max Lumen Output @ 4000K/90CRI	120VAC: 2700lm / 3220lm / 3670lm 230VAC: 2230lm / 2570lm / 2710lm 277VAC: 2580lm / 2940lm / 3160lm
Dimming Type/Range	Leading Edge (TRIAC) or Trailing Edge (ELV) @120VAC only / 100% ~ 10% ^②
Beam Angle	120° with lens
Color Rendering Index	CRI (Ra)>=90 / R9>=50 / TM-30 R>=85 / TM-30 R_g>=95
Storage Temperature Range	-35°C to 100°C / -31°F to 212°F
Operating Ambient Temperature Range (Ta)	-35°C to 50°C / -31°F to 122°F
Maximum Module Case Temperature	85°C(185°F)
Estimated Lumen Maintenance	L70= >72,000 hours @ Tc max 85°C / L90= 37,000 hours @ Tc max 85°C
Color Consistency (Color Center@25°C)	2700K (0.458, 0.410); 3000K (0.431, 0.397); 3500K (0.405, 0.384) 4000K (0.380, 0.372); 5000K (0.345, 0.335), Typ. 5 SDCM, Max. 6 SDCM
Flicker Percentage per CEC JA10	<30% with 200Hz cut-off
Flicker P _{st} / SVM	P _{st} : =0.594 SVM: =0.416
Start-up Time	Typ. 30ms
Overall Size with optical lens	9.55"Dia. x 0.8"H (242.6mm Dia. x 20.3mm H)
Wire Type / Length	18AWG / 12" Black & White wires
LED Quantity	56pcs. CW + 56pcs. WW
Weight	279g / 0.615lbs.
Packaging: Master Carton	24pcs
Maximum Screw Installation Torque	35in-lb (560in-ozf)
Safety	DirectAC Module (without lens): cURus File # E351548, VATUNV034AC9TWB DirectAC Retrofit Kits: cULus Classified File # E365124, VJTUNV034AC9TWB
Compliance	RoHS Compliant Dry and Damp Location
RFI/EMI	FCC Part15 Class B, EN55015
Input Surge Test	1KV / 2KV combined wave; 2.5KV ring wave
Sound Rating / Noise	A / <24 dBA
Protective Lens / Enclosure	High Voltage Barrier / 3mm clear Polycarbonate 5VA flame rated
Lens Transmittance	>92%
PCB Material	MCPCB
Warranty	5 years @ Max. Tc 85°C (185°F) from the date of manufacture

① Measured electrical data per UL file

② With some phase cut dimmers, the engine will be dimmed to off

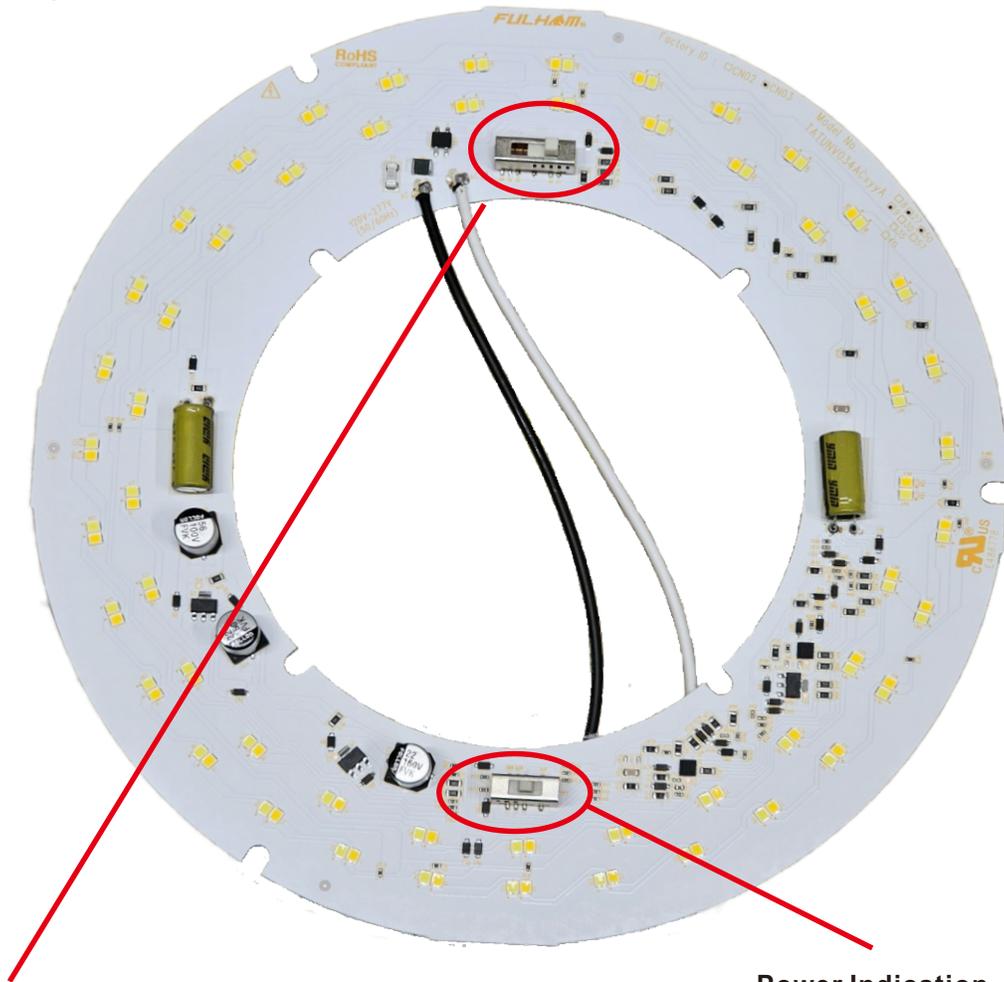


VJTUNV034AC9TWB

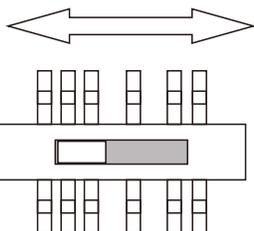


Power & CCT Selection Indication

1. The VividHorse DirectAC Engine Retrofit Kit is a dual-channel LED product that allows for Power & CCT selection via dip switches on the PCB. Available CCTs include 2700K, 3000K, 3500K, 4000K and 5000K.
2. A pre-set Power & CCT will come from the factory. Check the product label or packaging to see the pre-set level.
3. Change the Power dip switch for desired power level.
4. Change the CCT dip switch for desired CCT level.

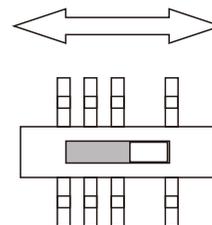


CCT Indication



5000K 4000K 3500K 3000K 2700K
Factory Default: 3000K

Power Indication



26W 30W 34W(Factory Default)



VJTUNV034AC9TWB



Electrical and Optical Specifications

CRI	DirectAC Retrofit Kit Part Number	Input Voltage	Selected Power	Selected CCT	Nominal Luminous Flux @ 90 CRI	Engine Efficacy @ 90 CRI
90	VJTUNV034AC9TWB	120VAC	26W	2700K	2470 lumens	96 lm/W
				3000K	2580 lumens	100 lm/W
				3500K	2730 lumens	106 lm/W
				4000K	2700 lumens	105 lm/W
				5000K	2560 lumens	100 lm/W
			30W	2700K	2860 lumens	93 lm/W
				3000K	3020 lumens	98 lm/W
				3500K	3350 lumens	109 lm/W
				4000K	3220 lumens	105 lm/W
				5000K	3020 lumens	98 lm/W
			34W	2700K	3310 lumens	95 lm/W
				3000K	3320 lumens	95 lm/W
				3500K	3550 lumens	101 lm/W
				4000K	3670 lumens	105 lm/W
				5000K	3360 lumens	96 lm/W
		230VAC	20W	2700K	2030 lumens	97 lm/W
				3000K	2130 lumens	101 lm/W
				3500K	2250 lumens	107 lm/W
				4000K	2230 lumens	106 lm/W
				5000K	2150 lumens	102 lm/W
24W	2700K		2340 lumens	94 lm/W		
	3000K		2440 lumens	98 lm/W		
	3500K		2590 lumens	104 lm/W		
	4000K		2570 lumens	104 lm/W		
	5000K		2460 lumens	99 lm/W		
27W	2700K		2470 lumens	91 lm/W		
	3000K		2590 lumens	96 lm/W		
	3500K		2760 lumens	102 lm/W		
	4000K		2710 lumens	100 lm/W		
	5000K		2600 lumens	96 lm/W		

NOTES:

- 1) Nominal luminous flux includes a 8% loss due to lens. Use a 1.08 multiplier when lens is removed.
- 2) Electrical and optical specifications are based on Tc mod = 25°C. Reference Amb. Temp. vs Rel. Lum. Flux for other temperatures.
- 3) Performance for these components have been tested in accordance with UL8750
- 4) Specifications are subject to change without notice.
- 5) 70CRI & 80CRI are NOT available.



VJTUNV034AC9TWB

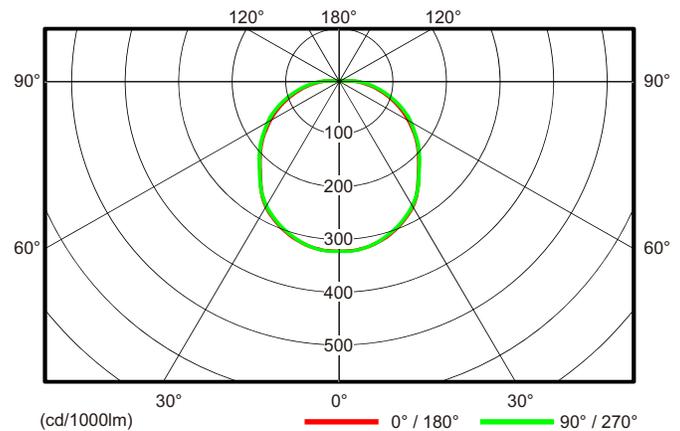


Electrical and Optical Specifications

CRI	DirectAC Retrofit Kit Part Number	Input Voltage	Selected Power	Selected CCT	Nominal Luminous Flux @ 90 CRI	Engine Efficacy @ 90 CRI
90	VJTUNV034AC9TWB	277VAC	26W	2700K	2390 lumens	92 lm/W
				3000K	2480 lumens	95 lm/W
				3500K	2590 lumens	100 lm/W
				4000K	2580 lumens	99 lm/W
				5000K	2520 lumens	97 lm/W
			30W	2700K	2750 lumens	89 lm/W
				3000K	2850 lumens	92 lm/W
				3500K	2980 lumens	96 lm/W
				4000K	2940 lumens	95 lm/W
				5000K	2870 lumens	93 lm/W
			34W	2700K	2910 lumens	86 lm/W
				3000K	3050 lumens	90 lm/W
				3500K	3160 lumens	93 lm/W
				4000K	3160 lumens	93 lm/W
				5000K	3070 lumens	90 lm/W

Light Distribution

Zone	Zone Flux%	Sum Zone Flux%
0 ~ 10	3.1%	3.1%
10 ~ 20	8.7%	11.8%
20 ~ 30	13.2%	25.0%
30 ~ 40	15.7%	40.8%
40 ~ 50	16.1%	56.8%
50 ~ 60	15.1%	72.0%
60 ~ 70	12.7%	84.6%
70 ~ 80	8.8%	93.5%
80 ~ 90	5.0%	98.4%
90 ~ 180	1.6%	100.0%



NOTES:

- 1) Nominal luminous flux includes a 8% loss due to lens. Use a 1.08 multiplier when lens is removed.
- 2) Electrical and optical specifications are based on Tc mod = 25°C. Reference Amb. Temp. vs Rel. Lum. Flux for other temperatures.
- 3) Performance for these components have been tested in accordance with UL8750
- 4) Specifications are subject to change without notice.
- 5) 70CRI & 80CRI are NOT available.

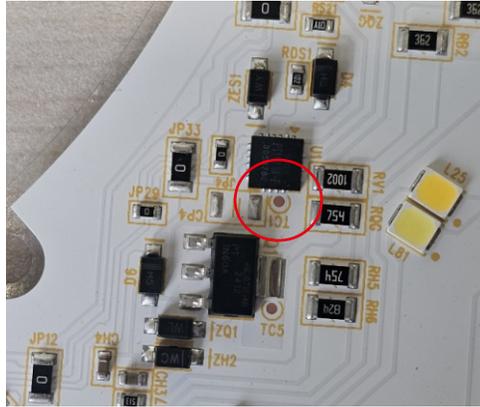


VJTUNV034AC9TWB

Thermal Specifications

© DirectAC Engine Retrofit Kit

Storage Temperature Range	-35°C to 100°C / -31°F to 212°F
Operating Ambient Temperature Range	-35°C to 50°C / -31°F to 122°F
Maximum Module Case Temperature	85°C / 185°F



Tc located on module

Thermal De-Rating: Tc vs. Luminous Flux

Module Case Temperature (Tc)	Total Vf Multiplier	Luminous Flux Multiplier
25°C	1.000	1.000
30°C	0.998	0.992
35°C	0.995	0.984
40°C	0.993	0.976
45°C	0.990	0.967
50°C	0.988	0.958
55°C	0.986	0.949
60°C	0.984	0.940
65°C	0.982	0.931
70°C	0.980	0.922
75°C	0.978	0.913
80°C	0.977	0.904
85°C	0.976	0.895
90°C	0.974	0.886
95°C	0.973	0.877
100°C	0.971	0.867
105°C	0.969	0.858

NOTES:

- 1) Refer to DirectAC Engine Retrofit Kit Installation Instructions for further detail.
 - 2) This AC Engine Retrofit Kit can retrofit any luminaire with a dimension/volume greater or equal to the minimum dimensions shown below and on the Installation Instructions.
 - 3) This AC Engine Retrofit Kit can be used with luminaires similar to the one illustrated on the Installation Instructions.
- © Suitable for surface mounted luminaire with minimum dimensions or volume: 10" diameter with a height of 3.5" or 275 cubic inches.
All target luminaires shall conclude a metal back plate at size diameter 10" or larger with grounding means.



VJTUNV034AC9TWB



Certification Chart

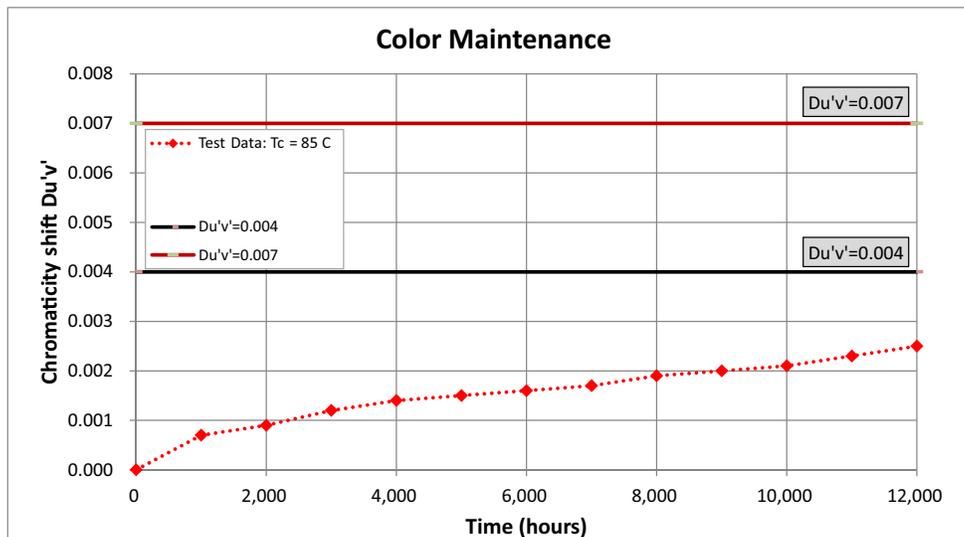
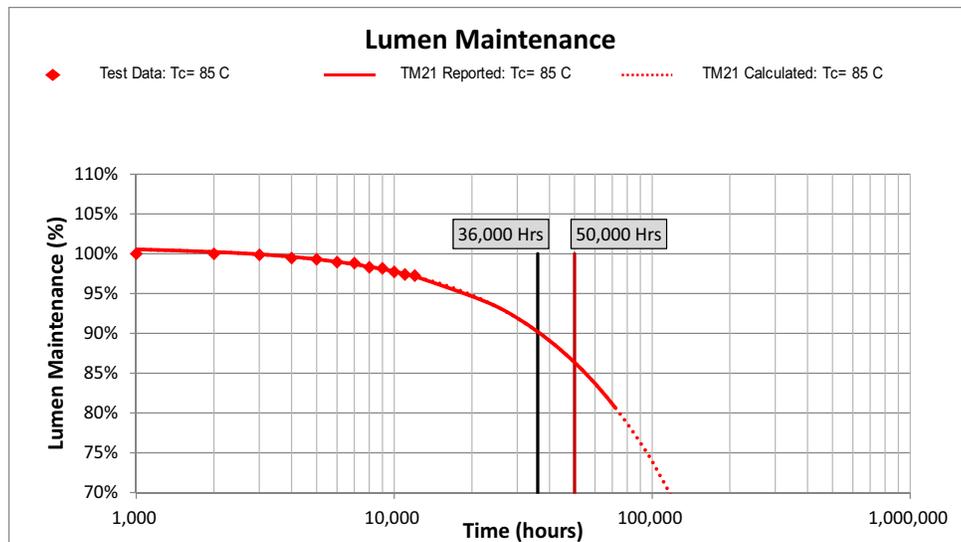
Classification	Model	VJTUNV034AC9TWB
		YES
		YES
		YES

Energy Star™ TM-21 Calculator Data

Tc Module	Reported L70	Reported L90
85°C	>72,000 Hrs	37,000 Hrs

Tc Module	Calculated L70	Calculated L90
85°C	117,000 Hrs	37,000 Hrs

LED Lumen & Color Maintenance Data per LM-80 report and TM-21 Calculator





VJTUNV034AC9TWB

Compatible Tested Dimmers (TRIAC or ELV Dimmers)

(Contact Fulham for other alternatives)

(TRIAC or ELV Dimmers)

Manufacture	Model	Type	Manufacture	Model	Type
Lutron	S-600	TRIAC (Leading Edge)	Eaton	SUT7	TRIAC (Leading Edge)
Lutron	S-603P	TRIAC (Leading Edge)			

NOTES:

- 1) The dimming compatibility is tested under 100%-10% dimming range.
- 2) A low-end trim adjustment on the dimmer is recommended to avoid flickering at low end dimming range.
- 3) Contact Fulham for other alternative dimmers.

Flicker Test Results per EnergyStar (NEMA77-2017 Test Methods)

Test Condition	Input Voltage(V)	Power(W)	Pst	SVM	Flicker% (200Hz cut-off)
120VAC No Dimmer	120	34	0.594	0.416	20%

Note: Flicker Percent Amplitude Modulation is no longer required by EnergyStar.
The test data per CEC JA10-2016 are from Fulham internal lab.



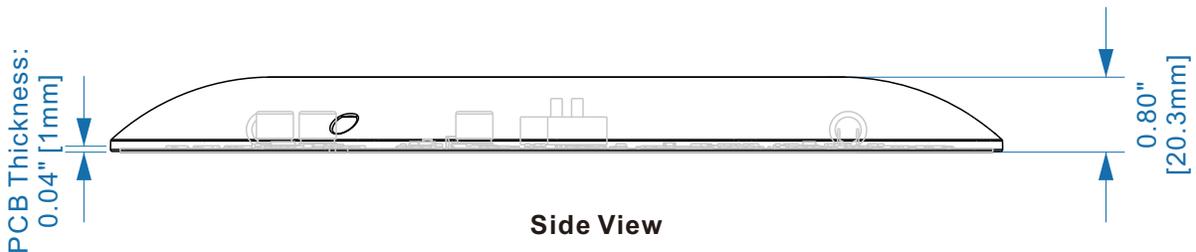
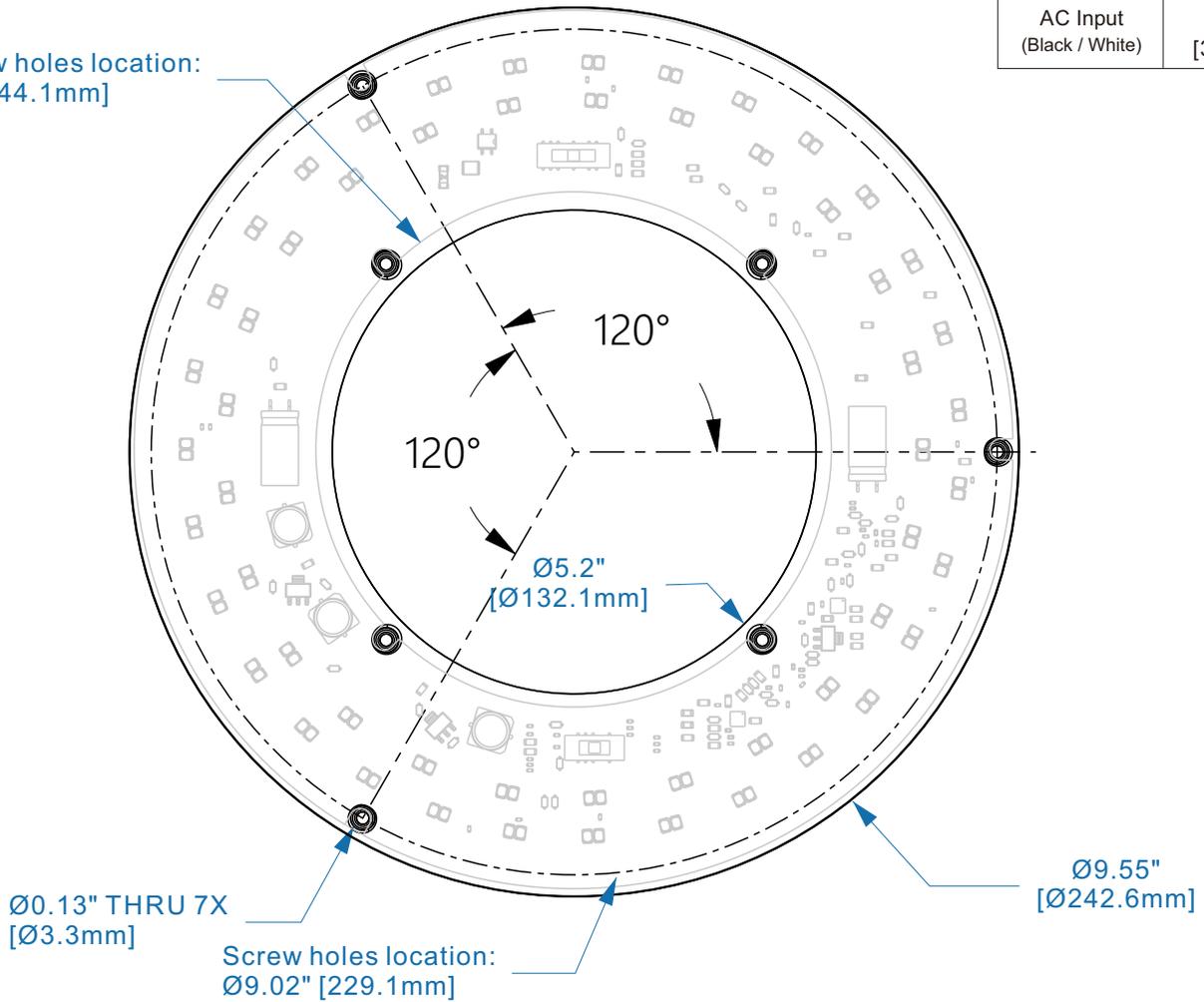
VJTUNV034AC9TWB

Mechanical Drawings

Φ9.55" [242.6mm]

Overall Dimensions with 5VA Lens	
Diameter	9.55" [242.6mm]
Height	0.80" [20.3mm]
Wire Length	
AC Input (Black / White)	12" [304.8mm]

Inner Screw holes location:
 Ø5.67" [Ø144.1mm]





VJTUNV034AC9TWB

DirectAC Engine Retrofit Kit Equivalency Chart: FLUO to LED

DirectAC Engine/Kit (34W)				CFL					
Engine/Kit Part Number	System Wattage	Lumen Output	Efficacy	CFL Style	Lamp Wattage	# of Lamps	Total Wattage	Lumen Output	Efficacy
VJTUNV034AC9TWB	34W	3670 lm (4K/90CRI)	105 lm/W	Quad	18W	3	54W	3225 lm	59 lm/W
					26W	2	52W	3100 lm	
				Triple	18W	3	54W	3060 lm	59 lm/W
					26W	2	52W	3072 lm	
				Circline T9	22+32W	1	54W	2275 lm	42 lm/W
Circline T5	55W	1	55W	3580 lm	65 lm/W				

NOTES:

- 1) LED is a point source and FLUO is 360, there is more light lost with FLUO especially during the reflection. Therefore it is recommended to use a 65 percent of the original light source total lumens when converting FLUO to LED. For example original FLUO lumens of 2000 x .65% = 1300 LED lumens. This is only a recommendation, and the installer should consider other factors for the application.
- 2) For reference only, several factors apply.

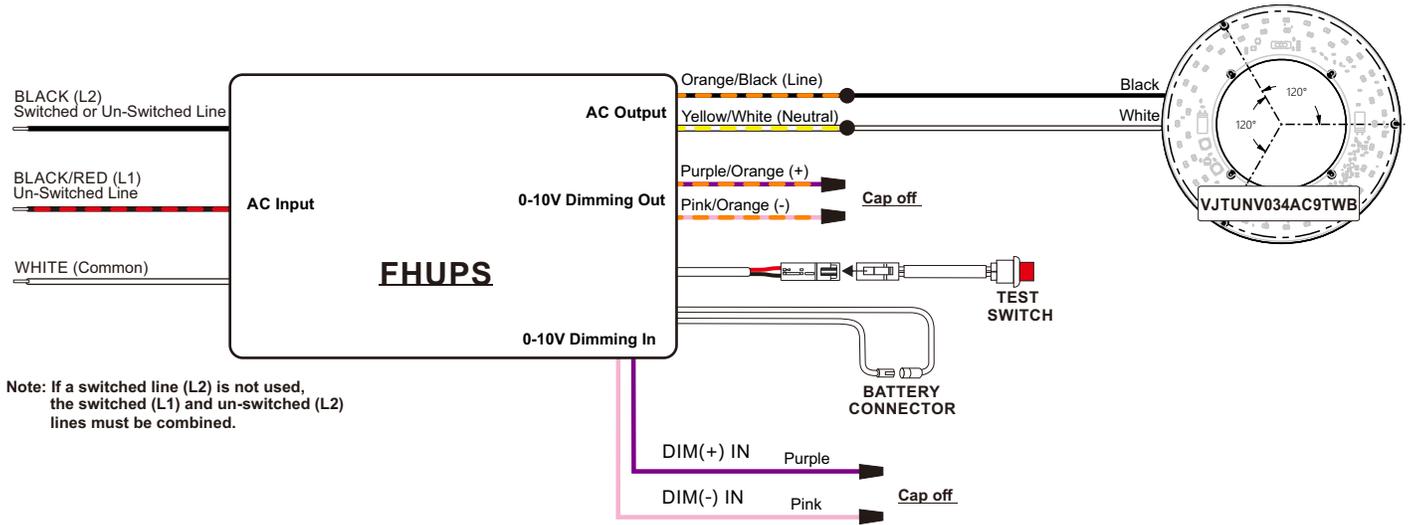


VJTUNV034AC9TWB

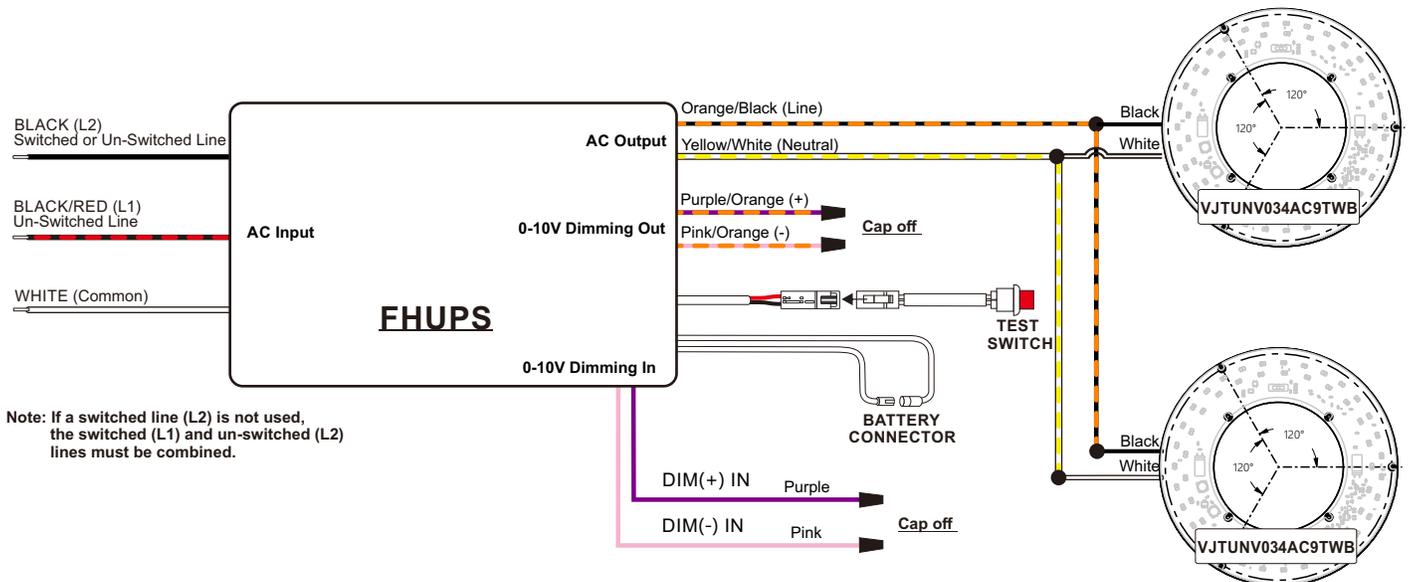


Wiring Diagram with Fulham Emergency Micro Inverter: FHUPS1-UNV-12L/25L/50L-SD

Single Luminaire



Multiple Luminaires



Inverter PN#	VJTUNV034AC9TWB		
	Select to 26W	Select to 30W	Select to 34W
FHUPS1-UNV-12L-SD	1 pcs	1 pcs	1 pcs
FHUPS1-UNV-25L-SD	1 pcs	1 pcs	1 pcs
FHUPS1-UNV-50L-SD	1 pcs	1 pcs	1 pcs

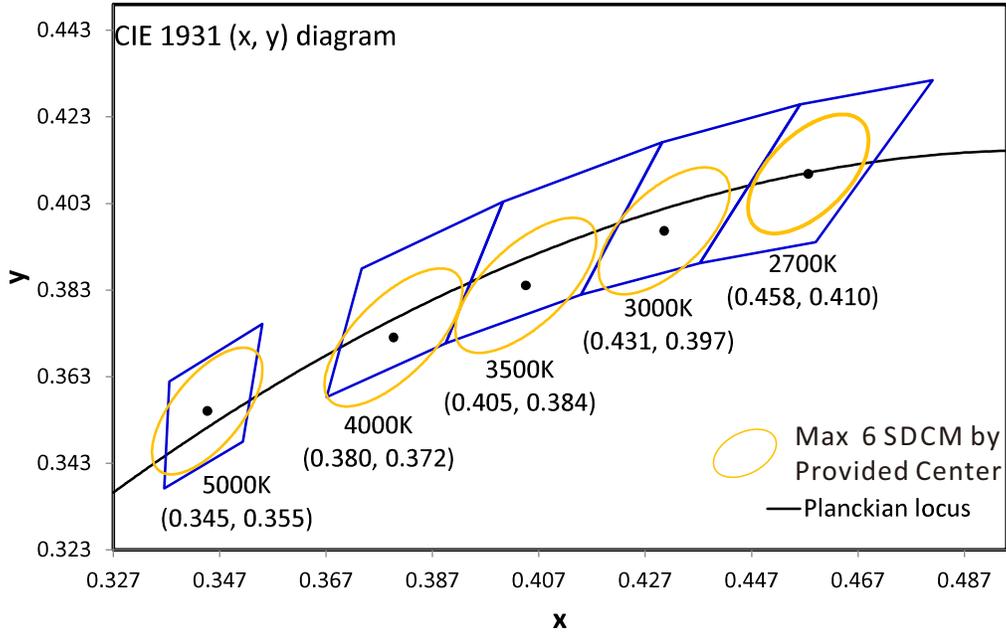
1) For reference only, several factors apply.
2) Emergency systems are not UL classified for field installation.



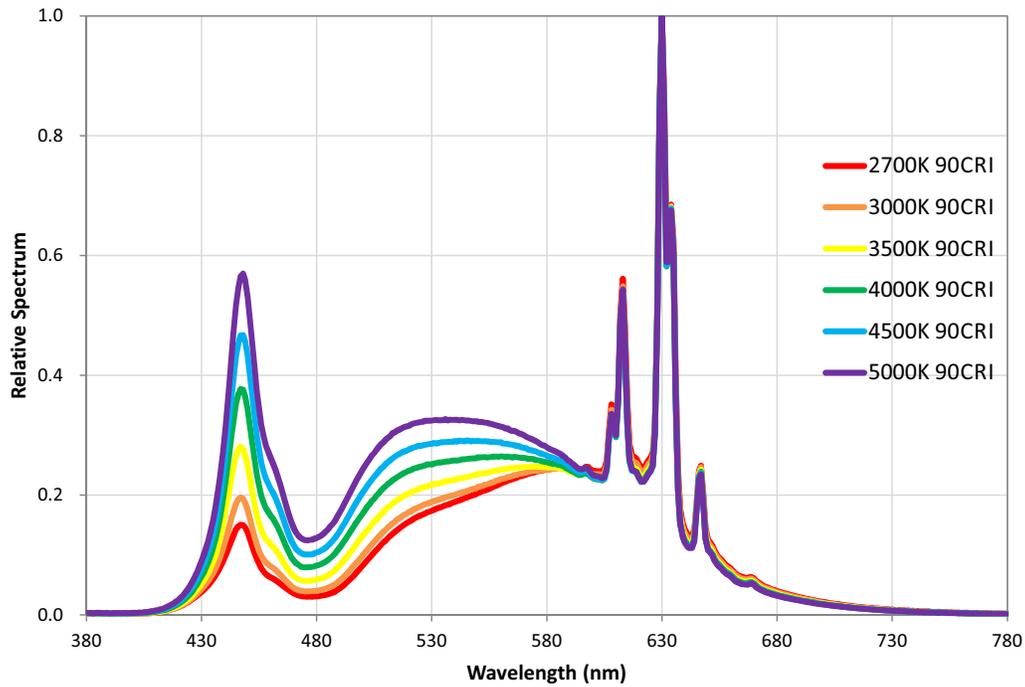
VJTUNV034AC9TWB



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 Chromaticity Diagram for Color and Binning. Binning per given center point@ 25°C; Max. 6 SDCM.
- 3) The Optical Spectrum values vary depending on product type and color rank.



VJTUNV034AC9TWB

Guidelines

Reduced Flicker Operation Feature

- DirectAC Engine models have added circuitry to help reduce the Flicker when operated on the 50/60Hz power lines. The Flicker percentage on these models is below 30% when operated at line voltage, per CEC requirement.
- Dimming by line voltage devices may increase the Flicker Percentage as the power levels are reduced.

Hi-Pot Testing (Caution)

- All DirectAC Engine models are Hi-Pot tested on the Fulham production line. We advise NOT to apply AC Hi-voltage Dielectric test to LED products as this may damage the sensitive electronic components as well as the LEDs. Please inspect the connection wires for any nicks or cuts in the insulation during and after installation.

Termination Notes

- A luminaire disconnect UL listed connector is included.
- Use solid wire size 18-12 AWG per pole, rated at min. 300V load and 105°C operating temperature.
- Strip wires to 10mm (0.39in.).
- Connector not for multiple use.
- Connector Max. rating (including daisy-chain connection): 3.0A@120VAC; 1.3A@277VAC



Environmental Rating

- DirectAC Engine Retrofit Kits are rated for dry and damp locations.

IC Over Temperature Control

- DirectAC Engine models have built-in thermal management. If the unit experiences higher than normal ambient temperature, the circuit will reduce the drive current to the LED there by reducing the thermal impact on the product.

Fastening to Luminaire

- When installing by "mounting thru holes" (recommended), use any screw with diameter less than 0.13in. [3.4mm]. Mount on a flat surface and use all mounting holes to ensure good contact between back side of DirectAC Engine Retrofit Kit and mounting surface.
- Refer to max specified torque for installation. Suggested screw sizes: #6 or M3 Pan Head screw. Fulham provides three 6-20 X 5/8" Flat Head Self Drilling Screws, see instruction sheets for further details.

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.

Wiring

- Intended for 120V/230V/277VAC (+/-10%) application ONLY.
- Connect the Black wire from the DirectAC Engine Retrofit Kit to the building Line by using the proper connectors or wire nuts.
- Connect the White wire from the DirectAC Engine Retrofit Kit to the building/source Neutral by using the proper connectors or wire nuts.
- DirectAC Engine does not need grounding, but the luminaire must be grounded.
- Do not wire on same branch circuit as motors, inductive type loads or heavy machinery which may introduce spikes, noise and other abnormalities onto the Line. Doing so may result in damage to the unit or abnormal lighting conditions.



VJTUNV034AC9TWB



Part Number Matrix

V J T UNV 034 AC 9 TW B

Product Line V = VividHorse
Compliance J = DirectAC Retrofit Kit (cULus Classified)
Dimming T = TRIAC
Input Voltage UNV = 120/230/277VAC
Estimated Power 034 = 34W (34/30/26W Selectable) Factory Default 34W
Shape AC = Circular
CRI 9 = 90
Color Temperature TW = 2700-5000K CCT Selectable, Factory Default 3000K

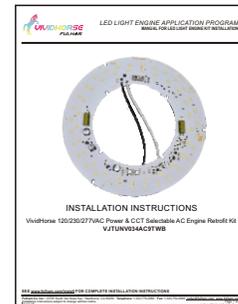
- ③ Standard Product offering. Default Power setting is 34W, default CCT setting is 3000K.
- ④ DirectAC Engine Retrofit Kit includes mounting hardware, retrofit labels, and installation instructions.

Product Image: 34W Round AC Engine Kit

VJTUNV034AC9TWB



This luminaire has been modified to operate LED lamps. Do not attempt to install or operate original lamps in this luminaire.
 REPLACE ONLY WITH FULHAM ELECTRONIC CO.: VJTUNV034AC9TWB
 Ce luminaire a été modifié et ne peut plus utiliser la lampe prévue à l'origine.
 REMPLACER UNIQUEMENT AVEC FULHAM ELECTRONIC CO.: VJTUNV034AC9TWB



Hardware Kit: TLC-HW08

120/230/277V DirectAC Engine Retrofit Kits:
 Hardware, Quick disconnect, Labels & Installation Instructions

Packaging

Master Carton



OUTER DIMENSION		
L	W	H
21.85"(555mm)	16.92"(430mm)	10.63"(270mm)
Net Weight	Gross Weight	QUANTITY
14.77 lbs. (6.70kg)	16.53 lbs. (7.50kg)	24pcs.

Twenty-Four (24) Individual DirectAC LED Engine bags inside each Master Carton.