Features

- 2 versions: 3-in-1 dimming; 3-in-1 dimming + 12V AUX output
- High efficiency up to 95.5%
- THD <15%
- Output current adjusted via DIP switch and fine-tuned via potentiometer
- CCT adjustable via DIP switch (optional)
- Surge protection: L-N: 6kV & L/N-GND: 6kV
- All-round protections: open circuit/short circuit protection
- Flicker free; non-isolated
- IP65; suitable for Class I light fixture

Application

· Highbay light

Descriptions

LF-FHB240YxIV 5X is a constant current LED driver featuring high efficiency, high PF and low THD. It has 2 versions: 3-in-1 dimming and 3-in-1 dimming + 12V AUX output. There is a potentiometer and 2 DIP switches on the side of LED driver used for adjusting the output current (power) of LED drivers or CCT of luminaires.

Product Model

LF - FHB240YAIV/YCIV 5X

- X: various versions: “D”: power adjustable via potentiometer; “B”: power adjustable via DIP switch+potentiometer; “T”: power+CCT change via DIP switch
- YC: 3-in-1 dimming
- YA: 3-in-1 dimming + 12V
- 240: output power: 240W
- F: non-isolated design; HB: for high bay light

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■ Electrical Characteristics

Model			LF-FHB240YAIV 5X			LF-FHB240YCIV 5X		
Output	Adjustable Output Current (TYP@220Vdc)		Adjusted via DIP switch and fine-tuned via potentiometer (600-1100mA; default setting: 1000mA±5%)					
			600mA	LOW	800mA	MID	1000mA	HIGH
	Flicker		Comply with IEEE Std 1789					
	Changeable CCT (one LED+) (optional)		Adjustable via DIP switch; two-channel output					
			Channel A		Channel A+B		Channel B	
	Output Voltage		180-260Vdc (LED)					
	Output Power		240W max. @120-277Vac					
	Ripple Current		＜3% @≤120Hz					
	Start-up Time		120Vac <1S @full load					
	Linear Adjustment Rate		±5% @full load					
	Load Adjustment Rate		±8% @full load					
	Temperature Drift		±3% Tc: 25~75℃@full load					
Input	AC Input Voltage		90-305Vac (rated: 100-277Vac)					
	DC Input Voltage		127-305Vdc (rated: 141-276Vdc)					
	Input Current		3.0A max.					
	Input Frequency		50/60Hz					
	PF		≥0.9/277Vac @70% load					
	THD		≤15% @full load					
	Efficiency	MIN	91%/120Vac @240Vdc/1000mA; 93.5%/277Vac @240Vdc/1000mA					
		TYP	93%/120Vac @240Vdc/1000mA; 95.5%/277Vac @240Vdc/1000mA					
		MAX	/					
	In-rush Current		<100A/350uS @230Vac					
	Loading Quantities of Circuit Breaker		Model	B10	C10	B16	C16	
			Quantity (pcs)	4	7	7	11	
12V AUX Output (for YD only)	Output Voltage		+12Vdc (11-14V)					
	Output Current		200mA max.					
	Dynamic Load		Please make sure that it matches the LED driver.					
	Ripple Voltage		≤1V					
Protections	Surge		L-N: 6kV (2Ω), L/N-PE: 6kV (12Ω)					
	Open Circuit		Open-circuit voltage ≤310Vdc					
	Short Circuit		The LED driver will not be damaged even in the state of short circuit for a long time. (Auto-recovery)					

■ Electrical Characteristics

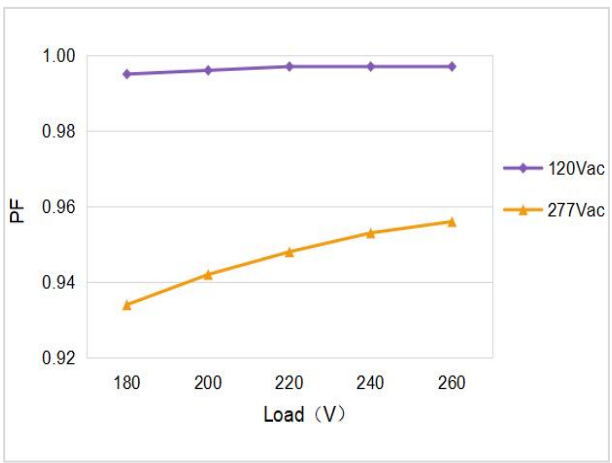
Environment Descriptions	Operating Temperature	Tc: -40℃~+90℃ (If ta exceeds 50℃, it should be controlled according to the ta test temperature.)
	Operating Humidity	0~95%RH (no condensation)
	Storage Temperature/ Humidity	-40℃~+80℃ (6 months in Class I environment); 0~95%RH (no condensation)
	Atmospheric Pressure	86~106kPa
Safety and EMC	Certifications	FCC, UL
	Withstanding Voltage	L/N-PE:1.5KVac,＜5mA,60S;L/N-DIM:3KVac,＜5mA,60S;DIM-PE:1.5KVac,＜5mA,60S
	Insulation Resistance	L/N-PE,L/N-DIM,DIM-PE:≥100MΩ@500Vdc/60S/25℃/50%RH
	Grounding Resistance	≤0.1Ω @25A/60S
	Safety Standards	UL 8750 CSA C22.2 no.250.13
	EMI	FCC：PART 15 CLASS B @120Vac FCC：PART 15 CLASS A @277Vac
	EMS	Comply with IEC61000-4-2, 3, 4, 5, 6, 8, 11, 12
	Ring Wave	6kV
	ESD	Air 8kV, touch 4kV
Other Parameters	IP Rating	IP65
	RoHS	RoHS 2.0 (EU) 2015/863
	Warranty	5 years (Tc ≤75℃)
	MTBF	>1000Khours@Telcordia SR-332 Issue4
Testing Equipment	AC power source: CHROMA6530, digital power meter: CHROMA66205, oscilloscope: Tektronix DPO3014, DC electronic load: M9712B, LED board, constant temperature and humidity chamber, lightning surge generator: Everfine EMS61000-5B, rapid group pulse generator: Everfine EMS61000-4A, spectroanalyzer: KH3935, hi-pot tester: EEC SE7440, flicker tester (flicker-free coefficient test) Everfine LFA-3000, etc.	
Testing Remark	If there are no special remarks, the above parameters are tested at the ambient temperature of 25℃, humidity of 50%, maximum output load and input voltage of 120Vac.	

■ Electrical Characteristics

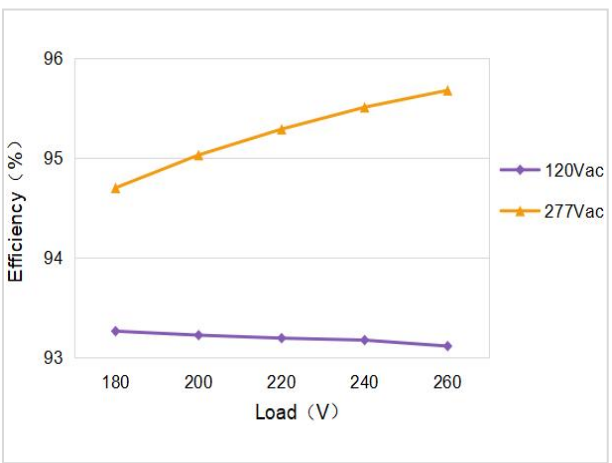
Additional Remarks	1. It is recommended that user install over voltage protection, under voltage protection and surge protection devices in the power supply circuits of light fixtures to ensure electricity safety. 2. The PC cover, casing and end cap for assembling the LED driver in the light fixture must meet the fire rating of UL94-V0 or above. 3. The LED driver used in combination with the end device is one of the accessories of the whole light fixture, and the EMC of the whole light fixture is not only susceptible to the driver itself, but to the LED light fixture and the whole light fixture's wiring. Thus, the manufacturer of LED light fixture should re-confirm the EMC of the whole light fixture before the whole light fixture is finished. 4. It is suggested that user use a slotted screwdriver or a Philips to adjust the output current of LED driver in case that the potentiometer is damaged (the screwdriver should have good insulation at the head, body and handle, and the screwdriver with a 2mm head is recommended as well; what's more, please pay attention that the intensity of torque not exceed 500g.cm). 5. When using the LED driver, please pay attention that the total output power not exceed the maximum rated output power, otherwise the warranty service of LED driver would be failed. 6. When conducting withstanding voltage test on LED driver, please short-circuit the input wire L and N; the positive electrode and negative electrode of the output wire; the positive electrode and negative electrode of the dimming wire and AUX power supply. 7. Please fully inspect the withstanding voltage ability of LEDs and aluminum substrates and the value shall >2.5kVac.

■ Product Characteristic Curves

PF Curve



Efficiency Curve



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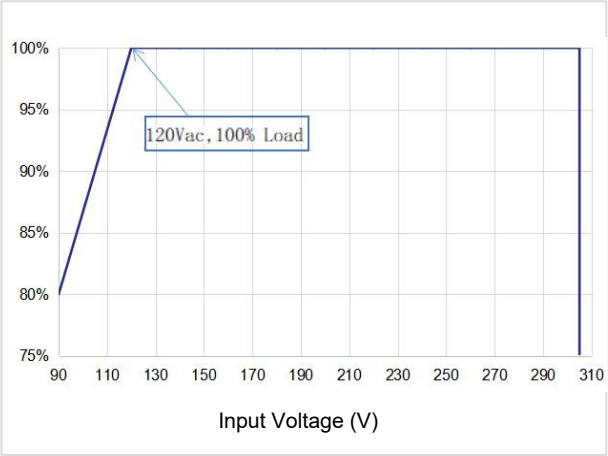
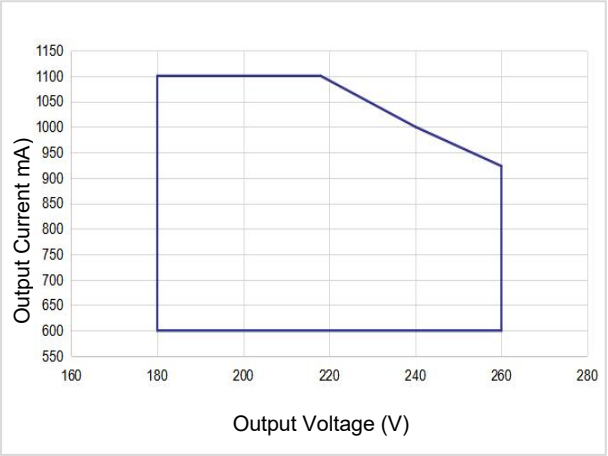
■ Product Characteristic Curves

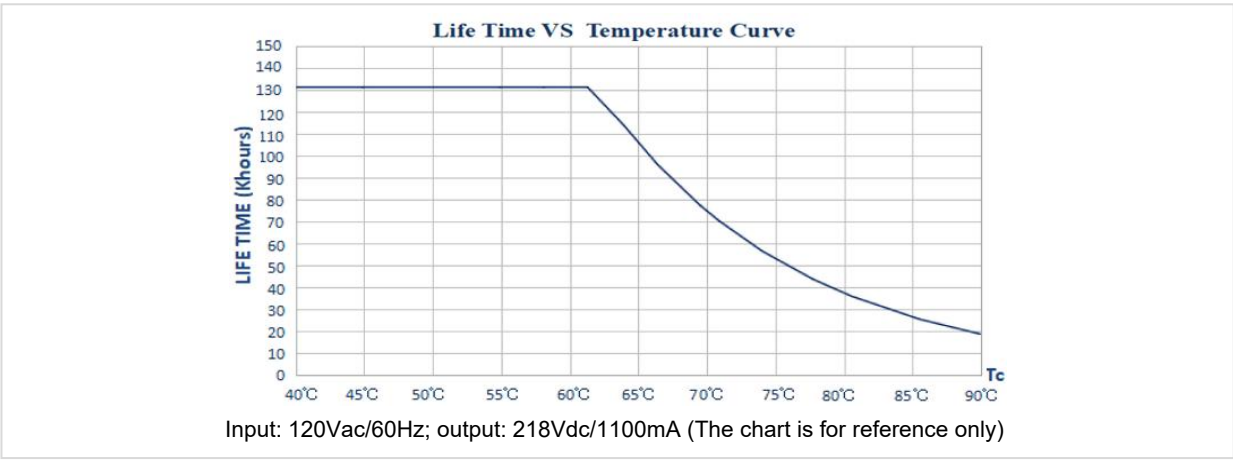
Load Derating Curve



Power Curve



Lifetime Curve



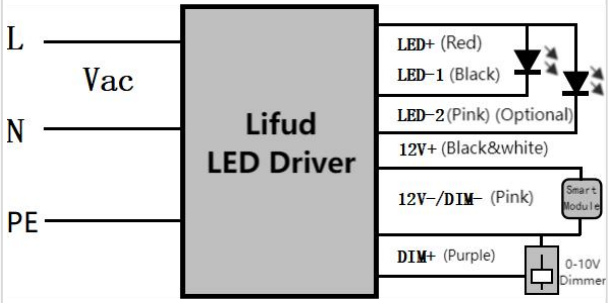
Input: 120Vac/60Hz; output: 218Vdc/1100mA (The chart is for reference only)

■ Dimming Operation Instructions

0-10V Dimming Operation

- Connect 0-10V signal to DIM terminal.
- In 0-10V dimming mode, when the input voltage is 0.8V±0.15, the light turns off; when it's 1.0V±0.15, the light turns on.
- Dimming depth: 10% (typical value), the maximum is <12%
- DIM+/- (without signal connected): 100% rated current output

Wiring Diagram of 0-10V Dimming



This diagram is only for YA version; YC version has no 12V+

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■ Dimming Operation Instructions

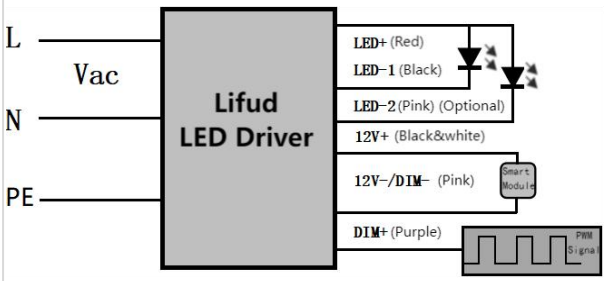
Dimming Curve

Input: 120Vac; output: 218Vdc/1100mA
(this data is measured by Lifud 0-10V dimmer and the chart is for reference only)

PWM Dimming Operation

- Connect PWM signal to the DIM terminal.
- Dimming depth: 10% (typical value), the maximum is <12%
- Compatible signal range: 1000-3000(Hz), amplitude: 9-10(V)
- DIM+/- (without signal connected): 100% rated current

Wiring Diagram of PWM Dimming



This diagram is only for YA version; YC version has no 12V+

Dimming Curve

Input: 120Vac; output: 218Vdc/1100mA
(this data is measured by PWM signal generator Tektronix and the chart is for reference only)

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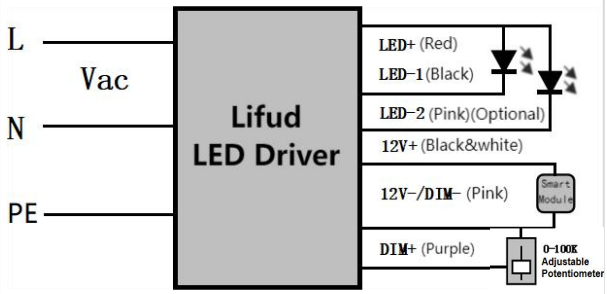
■ Dimming Operation Instructions

Rx Dimming Operation

- Connect Rx signal to the DIM terminal.
- Range: 0-100KΩ
- Dimming depth: 10% (typical value), the maximum is <12%
- DIM+/- (without signal connected): 100% rated current

Wiring Diagram of Rx Dimming



This diagram is only for YA version; YC version has no 12V+

Dimming Curve

Input: 120Vac; output: 218Vdc/1100mA
(this data is measured by resistance dimmer and the chart is for reference only)

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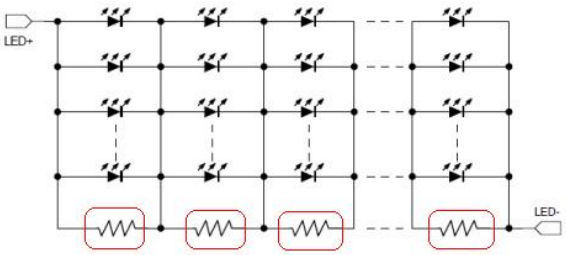
■ Dimming Operation Instructions

When the dimming signal is 0V, the LED driver has no output, but there exists junction capacitance between the aluminum substrate's copper foil and the grounding wire, which will make the LED beads glow slightly. Thus, it is necessary to respectively attach a resistor to every node of LED beads in parallel, and the resistance should match for the parameters of aluminum substrate and LED beads. (reference resistance: 3-5KΩ/size: 1206)

The parallel connection method is shown in the figure on the right:



■ Structure & Dimensions (unit: mm; tolerance)

Wire Specifications

Type	Input Wire	Output Wire 1	Output Wire 2 CCT Changeable via DIP Switch (optional)	Dimming Wire & AUX Output Wire
YA	3*18AWG Φ 7.8±1mm	2*18AWG Φ 7.7±1mm	3*18AWG Φ 7.7±1mm	3*22AWG Φ 5.0±1mm
YC	3*18AWG Φ 7.8±1mm	2*18AWG Φ 7.7±1mm	3*18AWG Φ 7.7±1mm	3*22AWG Φ 5.0±1mm
Color	AC-L Black; AC-N White; PE Green	LED+ Red; LED-1 Black	LED+ Red; LED-1 Black; LED-2 Pink	DIM+ Purple; DIM- Pink; +12V Black & White
Length	300±10mm (L1)	200±8mm (L2)	200±8mm (L2)	280±8mm (L3) 200±8mm (L4)
Peeled	40±4mm (X1)	35±4mm (X2)	35±4mm (X2)	40±4mm (X3/X4)
Tinned	10±1.5mm (Y1)	10±1.5mm (Y2)	10±1.5mm (Y2)	10±1.5mm (Y3/Y4)

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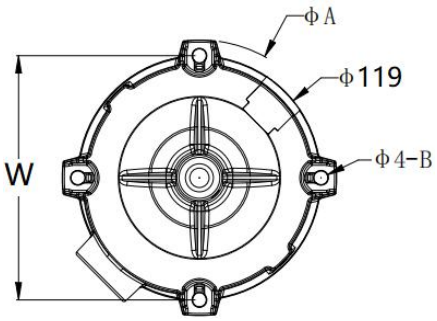
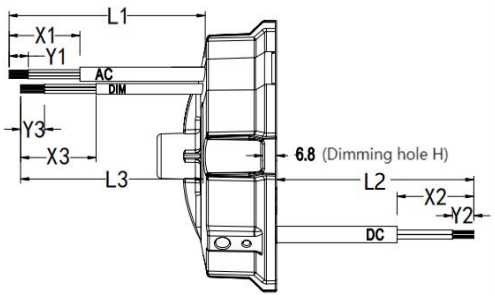
■ Structure & Dimensions (unit: mm)

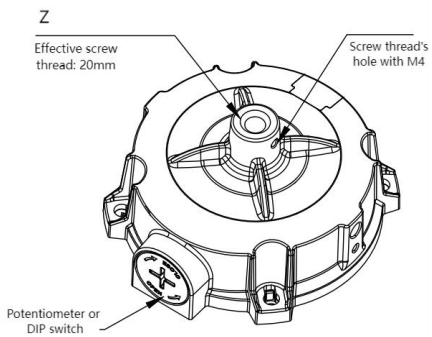
Overall Appearance

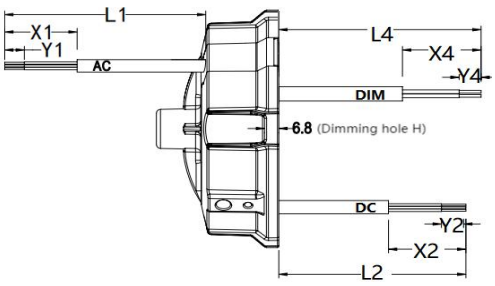
Description	Symbol	Unit (mm)
Casing Diameter	A	Φ127.5±0.5
Diameter of Fixed Screw Hole	4-B	Φ6.4±0.2
Diameter of Assembly Hole	W	113±0.5
Ring's Hole	Z	M10*1.5
Casing Height	H	58.9±0.5



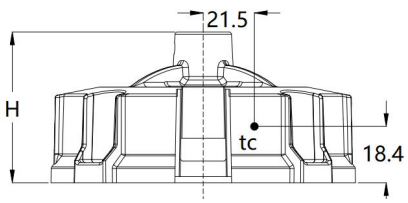


The dimming wire is on the top caing





The dimming wire is on the bottom casing



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■ Packaging Specifications

Model	LF-FHB240YA/YCIV 5X
Carton Size	570*380*160 mm (L*W*H)
Quantity	15 pcs/layer; 1 layer/ctn; 15 pcs/ctn
Weight	0.70±0.1 kg/pc; 12.5±1.0 kg/ctn

■ Transportation and Storage

1. Transportation

- Suitable transportation means: vehicles, boats and aeroplanes.
- In transit, it is necessary to prepare awnings for rain or sun protection. Moreover, please keep civilized loading and unloading to prevent the vibration or impact of LED driver as much as possible.

2. Storage

- The storage of LED driver shall conform to the standard of Class I environment. When using LED drivers which have been stored for more than 6 months, please re-test them firstly. Do not use them unless they are tested to be qualified.

Cautions

- Please use Lifud LED driver according to its parameters in the specification, otherwise the LED driver may malfunction.
- Using any incompatible light fixtures or those that have not been certified may cause fire, explosion or other risks.
- Man-made damage is beyond the scope of Lifud warranty service.

Remark: Lifud Technology Co., Ltd. reserves the right to interpret any contents of this specification.