

### Features

- High efficiency up to 95%
- THD <15%
- Output current adjusted via DIP switch and fine-tuned via potentiometer
- CCT adjustable via DIP switch (optional)
- 3 versions selectable: non-dimmable, 3-in-1 dimming & 3-in-1 dimming + 12V AUX output
- Dim to off without afterglow (optional and for YA version only)
- Surge protection: L-N: 6kV & L/N-GND: 6kV
- All-round protections: over voltage protection and short circuit protection
- Flicker free



### Application

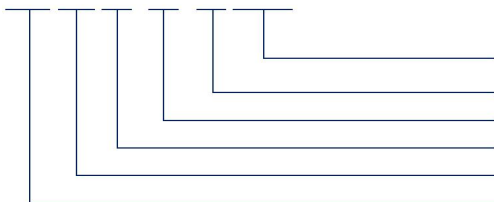
- For the HB80-120W Highbay light

### Descriptions

LF-FHB120YA/YB/YCIV 5 is a constant current LED driver featuring high efficiency, high PF and low THD. It has 3 selectable versions, including non-dimmable, 3-in-1 dimming & 3-in-1 dimming + 12V AUX output. There is a potentiometer and 2 DIP switches on the side of LED driver that are used to adjust the output current (power) of LED drivers and CCT of luminaires.

### Product Model

LF - FHB 120 YA / YC / YB IV



- IV: serial number for product upgrade and iteration
- YB: non-dimmable (potentiometer)
- YC: 3-in-1 dimming (potentiometer)
- YA: 3-in-1 dimming + 12V (potentiometer)
- 120: rated power: 120W
- F: non-isolated design; HB: for high bay light

■ **Electrical Characteristics**

Model		LF-FHB120YAIV	LF-FHB120YBIV	LF-FHB120YCIV				
<b>Output</b>	Adjustable Output Current (TYP@220Vdc)	Adjusted via DIP switch and fine-tuned via potentiometer (300-500mA; default setting: 500mA±5%)						
		300mA	LOW	400mA	MID	500mA	HIGH	
	Changeable CCT (one LED+)	Adjustable via DIP switch (optional); two-channel output						
		Channel A		Channel A+B		Channel B		
	Output Voltage	180-260Vdc (LED)						
	Output Power	120W max. @120-277Vac						
	Start-up Time	120Vac <1S; 230Vac <0.5S						
	Linear Adjustment Rate	±5% @full load						
	Load Adjustment Rate	±8% @full load						
Temperature Drift	±3% @240Vdc/500mA Tc: 25~75°C							
<b>Input</b>	Input Voltage	US-standard version: 100-277Vac; EU-standard version (optional): 100-240Vac						
	DC Input Voltage	141-276Vdc						
	Input Current	1.6A max.						
	PF	≥0.95/230Vac @full load						
	THD	≤15% @full load						
	Efficiency	MIN	91%/120Vac @240Vdc/500mA; 93.5%/230Vac @240Vdc/500mA					
		TYP	93%/120Vac @240Vdc/500mA; 95%/230Vac @240Vdc/500mA					
		MAX	/					
	In-rush Current	<80A/350uS @230Vac						
Standby Power Consumption	≤0.5W @220Vac/50Hz (dim to off)							
<b>12V AUX Output (for YA only)</b>	Output Voltage	+12Vdc (11-14V)						
	Output Current	200mA max.						
	Dynamic Load	Please make sure that it matches the LED driver.						
	Ripple Voltage	≤1V						
<b>Protections</b>	Surge	L-N: 6kV (2Ω), L/N-PE: 6kV (12Ω)						
	Open Circuit	Open-circuit voltage ≤310Vdc						
	Short Circuit	≤15W The LED driver will recover by itself and will not be damaged even in the state of short circuit for a long time.						
	Grounding Resistance	≤0.1Ω @25A/60S						
	Insulation Resistance	≥100MΩ @I/P-PE O/P-PE: 500Vdc/60S/25°C/50%RH						

■ **Electrical Characteristics**

<b>Environment Descriptions</b>	Operating Temperature	Tc: -40°C~+90°C
	Operating Humidity	0~95%RH (no condensation)
	Storage Temperature/ Humidity	-40°C~+80°C (6 months in Class I environment); 0-95%RH (no condensation)
	Atmospheric Pressure	86~106kPa
<b>Safety and EMC</b>	Certifications 1	FCC, UL
	Certifications 2 (optional)	TUV-ENEC, CE, RCM, SAA, CB
	Withstanding Voltage	L-N/PG: 1.5kVac, <5mA, 60S; L-N/DIM: 3kVac, <5mA, 60S; DIM/PG: 500Vac, <5mA, 60S
	Safety Standards	ENEC: EN61347-1: 2015, EN61347-2-13: 2014/A1: 2017, EN62384: 2016/A1 2009 UL: UL8750, CSA 250.13 CE-LVD: EN 61347-2-13: 2014/A1: 2017, EN 61347-1: 2015, EN 62493: 2015 CB: IEC 61347-1: 2015, IEC61347-2-3: 2014, IEC 61347-2-13: 2014/AMD1: 2016 SAA: AS 61347.2-13: 2018 RCM: AS 61347.2-13: 2018
	EMI	FCC: PART 15 CLASS B @120Vac FCC: PART 15 CLASS A @277Vac CE-EMC/RCM: EN55015, EN61000-3-2, EN61000-3-3
	EMS	Complies with IEC61000-4-2, 3, 4, 5, 6, 8, 11, 12; IEC61547 CE-EMC/RCM: EN61000-4-2, 3, 4, 5, 6, 11
	Ringing Wave	4kV
	ESD	Air 8kV, touch 4kV
<b>Other Parameters</b>	IP Rating	IP65
	RoHS	RoHS 2.0 (EU) 2015/863
	Warranty	5 years (Tc ≤85°C)
	MTBF	>1000Hours@Telcordia SR-332 Issue4
<b>Testing Equipment</b>	Digital power meter: CHROMA66202, oscilloscope: Tektronix DPO3014, DC electronic load: M9712B, LED board, constant temperature and humidity chamber; Everfine EMS61000-5B; Everfine EMS61000-4A, spectroanalyzer: KH3935, hi-pot tester: TH9201B, etc.	

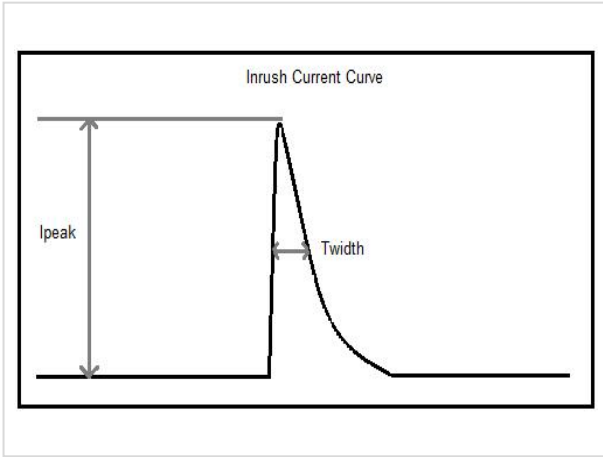
**■ Electrical Characteristics**

<p><b>Testing Remark</b></p>	<p>If there are no special remarks, the above parameters are tested at the ambient temperature of 25°C, humidity of 50%, full load and input voltage of 230Vac.</p>
<p><b>Additional Remarks</b></p>	<ol style="list-style-type: none"> <li>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.</li> <li>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.</li> <li>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.</li> <li>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).</li> <li>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.</li> <li>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.</li> <li>7. Please fully inspect the withstanding voltage ability of LEDs and aluminum substrates and the value shall be &gt;2.5kVac.</li> </ol>

**■ Qty & Parameters of Driver (the same model) a Circuit Breaker Configures**

Term	Peak Inrush Current (Ipeak)	Half-peak Inrush Current (Twidth)
Input voltage 120Vac	44A	90uS
Input voltage 230Vac	60A	111uS

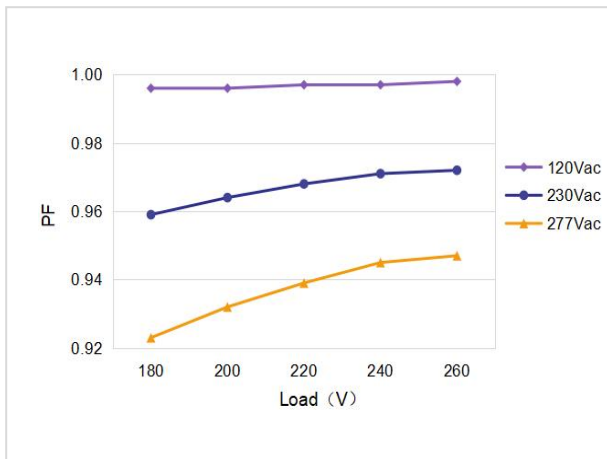
■ Qty & Parameters of Driver (the same model) a Circuit Breaker Configures



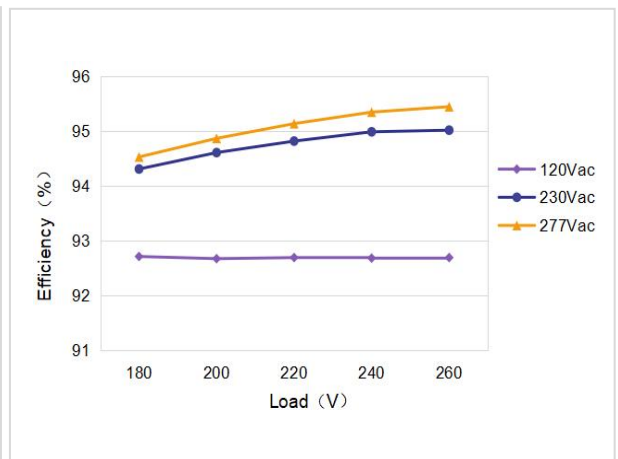
Qty of Driver a Circuit Breaker Configures (input voltage: 230Vac)		
Type	Rating	Qty of Driver
B	10A	11 pcs
	13A	14 pcs
	16A	18 pcs
	20A	22 pcs
	25A	28 pcs
C	10A	12 pcs
	13A	15 pcs
	16A	18 pcs
	20A	23 pcs
	25A	29 pcs

■ Product Characteristic Curves

PF Curve

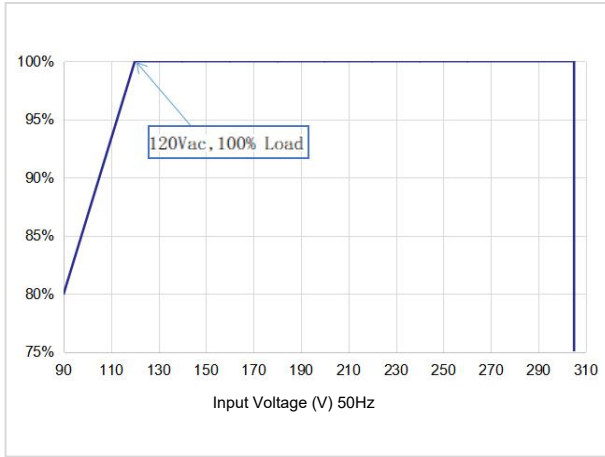


Efficiency Curve

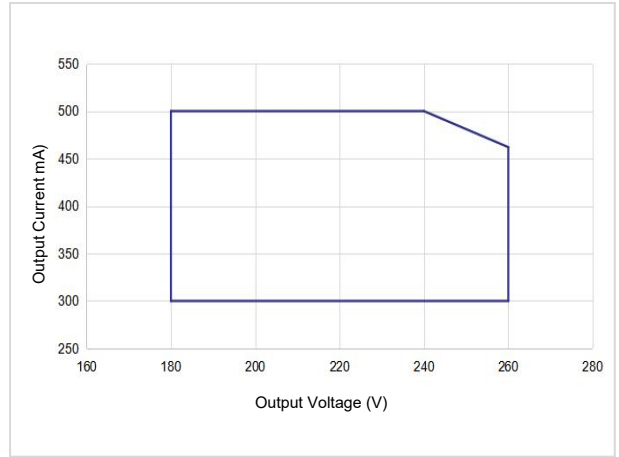


■ Product Characteristic Curves

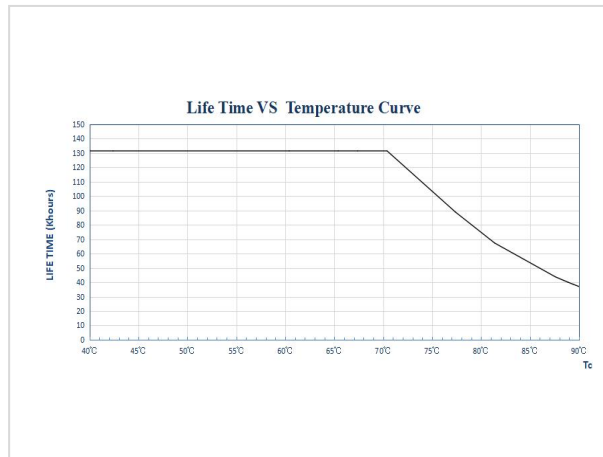
Load Derating Curve



Power Curve



Lifetime Curve

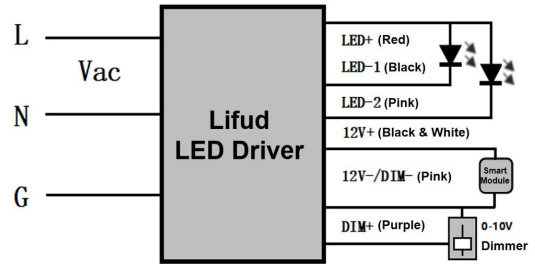


### ■ Dimming Operation Instructions

#### 0-10V Dimming Operation

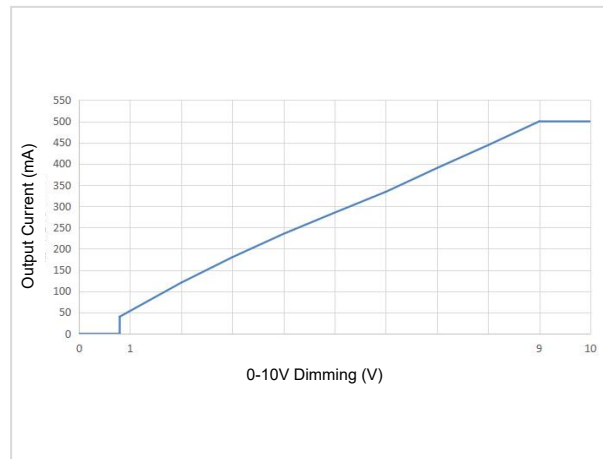
- Connect 0-10V signal to DIM terminal.
- In 0-10V dimming mode, when the input voltage is  $0.8V \pm 0.15$ , the light turns off; when it's  $1.0V \pm 0.2$ , the light turns on.
- Dimming depth: 10% (typical value)
- DIM+/- (without signal connected): 100% rated current output

#### Wiring Diagram of 0-10V Dimming



This diagram is only for YA version; YC version has no 12V+; YB version has no 12V+, DIM+ or 12V-/DIM-.

#### Dimming Curve



Input: 230Vac; output: 240Vdc/500mA

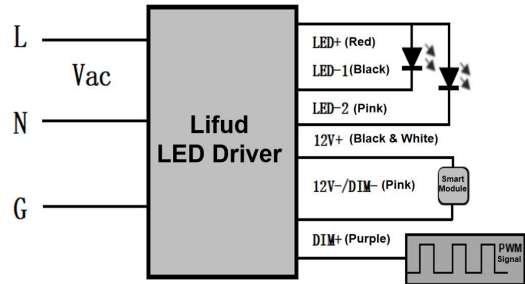
(this data is measured by Lifud 0-10V dimmer and the chart is for reference only)

### ■ Dimming Operation Instructions

#### PWM Dimming Operation

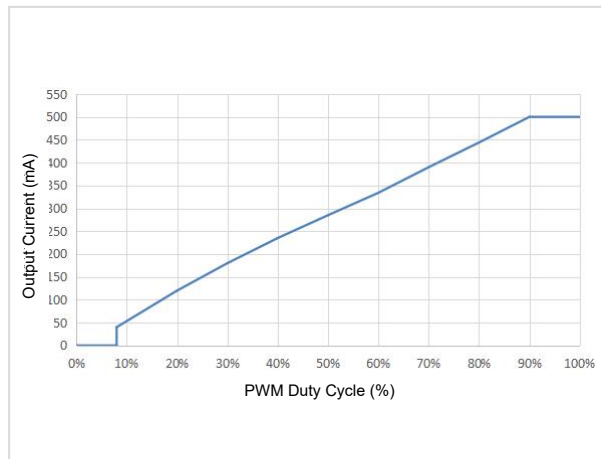
- Connect PWM signal to the DIM terminal.
- Dimming depth: 10% (typical value)
- Compatible signal range: 1000-3000(Hz), amplitude: 9-10(V)
- DIM+/- (without signal connected): 100% rated current

#### Wiring Diagram of PWM Dimming



This diagram is only for YA version; YC version has no 12V+; YB version has no 12V+, DIM+ or 12V-/DIM-.

#### Dimming Curve



Input: 230Vac; output: 240Vdc/500mA

(this data is measured by Lifud PWM signal generator RIGOL and the chart is for reference only)

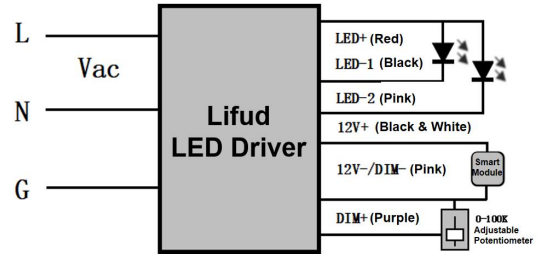


### ■ Dimming Operation Instructions

#### Rx Dimming Operation

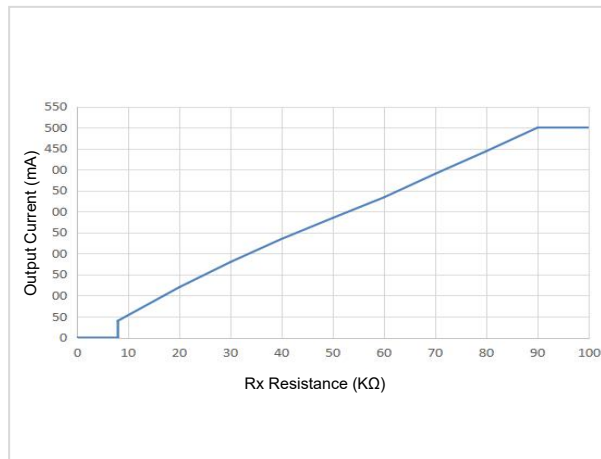
- Connect Rx signal to the DIM terminal.
- Range: 0-100KΩ
- DIM+/- (without signal connected): 100% rated current

#### Wiring Diagram of Rx Dimming



This diagram is only for YA version; YC version has no 12V+; YB version has no 12V+, DIM+ or 12V-/DIM-.

#### Dimming Curve

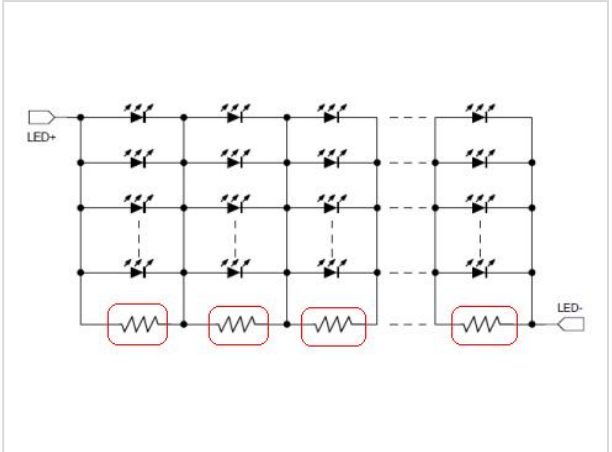


Input: 230Vac; output: 240Vdc/500mA  
 (this data is measured by resistance dimmer and the chart is for reference only)

### ■ Dimming Operation Instructions

#### Dim-to-off "Without Afterglow" Operation

The dim-to-off without afterglow version of YA series is optional. If the other with afterglow versions need to be dimmed to off without afterglow, please refer to the following operations: 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)



### ■ Structure & Dimensions (unit: mm)

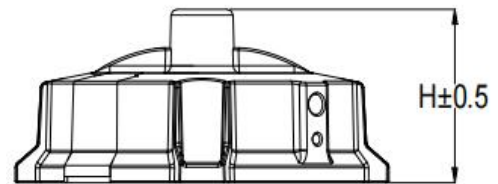
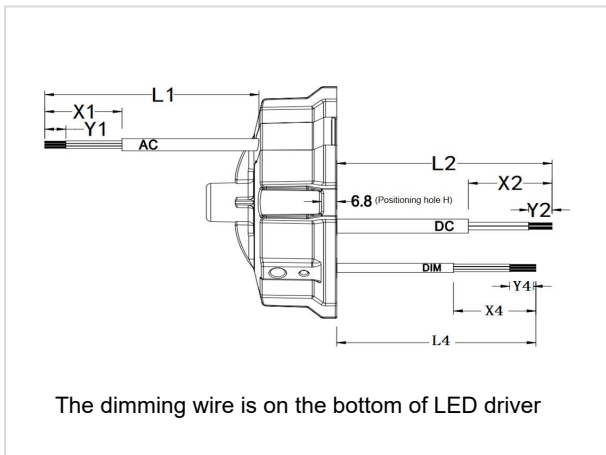
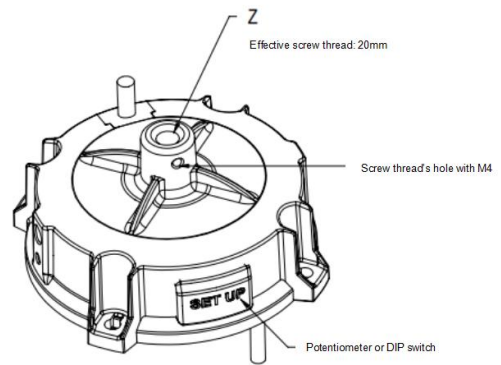
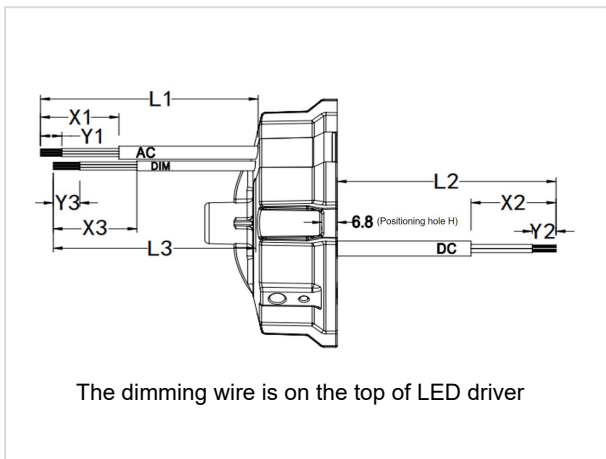
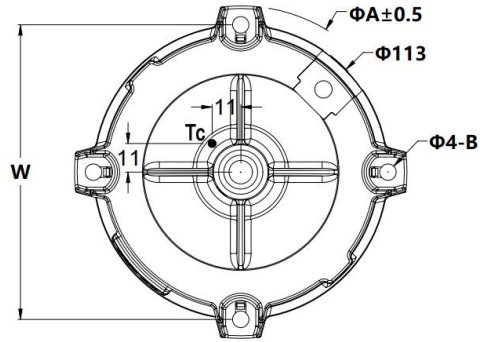
#### Wire Specifications

Type	Input Wire	Output Wire 1	Output Wire 2 CCT Changeable via DIP Switch (optional)	Dimming Wire & AUX Output Wire
US-standard Version	3*18AWG $\Phi$ 7.8 $\pm$ 1mm	2*18AWG $\Phi$ 7.7 $\pm$ 1mm	3*18AWG $\Phi$ 7.7 $\pm$ 1mm	YA: 3*22AWG $\Phi$ 5.0 $\pm$ 1mm YC: 2*22AWG $\Phi$ 4.5 $\pm$ 1mm
EU-standard Version (optional)	3*1.0mm <sup>2</sup> $\Phi$ 7.2 $\pm$ 1mm	2*1.0mm <sup>2</sup> $\Phi$ 6.8 $\pm$ 1mm	3*1.0mm <sup>2</sup> $\Phi$ 7.2 $\pm$ 1mm	
Color (US-standard version)	AC-L Black; AC-N White; PE Green	LED+ Red; LED- Black	LED+ Red; LED-1 Black; LED-2 Pink	DIM+ Purple; DIM- Pink; +12V Black & White
Color (EU-standard version)	AC-L Brown; AC-N Blue; PE Yellow & Green	LED+ Brown; LED- Blue	LED+ Brown; LED-1 Blue; LED-2 Black	
Length	300 $\pm$ 10mm (L1)	200 $\pm$ 8mm (L2)	200 $\pm$ 8mm (L2)	280 $\pm$ 8mm (L3)
				200 $\pm$ 8mm (L4)
Peeled	40 $\pm$ 4mm (X1)	35 $\pm$ 4mm (X2)	35 $\pm$ 4mm (X2)	40 $\pm$ 4mm (X3/X4)
Tinned	10 $\pm$ 1.5mm (Y1)	10 $\pm$ 1.5mm (Y2)	10 $\pm$ 1.5mm (Y2)	10 $\pm$ 1.5mm (Y3/Y4)

■ Structure & Dimensions (unit: mm)

Appearance and Dimensions

Description	Symbol	Unit (mm)
Casing Diameter	A	$\Phi 127.5 \pm 0.5$
Diameter of Fixed Screw Hole	4-B	$\Phi 6.3 \pm 0.2$
Diameter of Assembly Hole	W	$113 \pm 0.5$
Ring's Hole	Z	M10*1.5
Casing Height	H	$58.6 \pm 0.5$



## ■ Packaging Specifications

Model	LF-FHB120YA/YB/YCIV
Carton Size	570*380*160 mm (L*W*H)
Quantity	15 pcs/layer; 1 layer/ctn; 15 pcs/ctn
Weight	0.65±0.1 kg/pc; 11.7±1.5 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.