

Features

- 3-in-1 dimming + 12V AUX output
- High efficiency up to 96%
- THD <7%
- Stand-by power consumption ≤0.5W
- Output current adjustable via DIP switch and programmer
- Flicker free and non-isolated
- Dims to off without afterglow, beam angle/CCT adjustable via DIP switch (optional)
- Intelligent emergency control and time-controlled programming optional
- Surge protection: L-N: 6kV & L/N-GND: 6kV
- Lifetime: 50,000H (tc 85°C)
- All-round protections: OTP/short circuit protection
- IP65, suitable for Class I light fixtures



Application

- Highbay light

Descriptions

LF-H8-120U300AX is a constant current LED driver featuring high efficiency, high PF and low THD. It supports 3-in-1 dimming + 12V AUX output. There is a 3-shift DIP switch on the side of LED driver used for adjusting the output current (power), beam angle, and CCT. It is compatible with intelligent emergency control function to meet the different individual needs of customers.

Product Model

LF - H8 - 120 U 300 A X

- X: (blank: programmable+3-shift power; W: without afterglow; T: CCT adjustable; F: power+CCT+angle+without afterglow)
- A: 0-10V/PWM/Rx dimming+12V
- 300: max. output voltage: 300Vdc
- U: input voltage: 120-277Vac
- 120: max. output power: 120W
- H8: non-isolated UFO series

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■ Electrical Characteristics

Model			LF-H8-120U300AX												
Output	Output Current (TYP@240Vdc)	Adjustable via DIP switch and programmer (300-500mA; default setting: 500mA±5%)													
		300mA	LOW	400mA	MID	500mA	HIGH								
	Flicker	According to IEEE Std 1789													
	Changeable Angle (one LED-)	Adjustable via DIP switch (optional)													
		SA			MA			BA							
	Changeable CCT (one LED+)	Adjustable via DIP switch (optional)													
		Channel A			Channel A+B			Channel B							
	Output Voltage	180-300Vdc (LED)													
	Output Power	120W max. @120-277Vac													
	Ripple Current	<3% @≤120Hz													
	Start-up Time	120Vac <1S @full load; 230Vac&277Vac <0.7S @full load													
	Linear Adjustment Rate	±5% @full load													
	Load Adjustment Rate	±3%													
	Temperature Drift	±1000PPM/ °C @Tc: 25~90°C													
Input	AC Input Voltage		90-305Vac (rated: 120-277Vac)												
	DC Input Voltage		127-305Vdc (rated: 169-305Vdc)												
	Input Frequency		50/60Hz												
	Input Current		1.3A max.												
	PF		≥0.9 @277Vac/60Hz 70% load												
	THD		≤7% @120Vac/60Hz 70% load; ≤10% @230Vac/50Hz 70% load; ≤18% @277Vac/60Hz 70% load												
	Efficiency	MIN	92%/120Vac @300Vdc/400mA; 94%/230Vac&277Vac @300Vdc/400mA												
		TYP	93.5%/120Vac @300Vdc/400mA; 95.5%/230Vac&277Vac @300Vdc/400mA												
		MAX	/												
	In-rush Current		<60A/200us@120Vac, <90A/200us@230Vac, <110A/200us@277Vac @cold start												
	Loading Quantity on Circuit Breaker (PCS)	Model	B10	C10	D10	B16	C16	D16	B20	C20	D20	B25	C25	D25	
Qty@120Vac±10%		6	6	6	10	10	10	12	12	12	15	15	15		
Qty@230Vac±10%		9	12	12	15	19	19	19	24	24	24	30	30		
Qty@277Vac±10%		7	12	14	12	20	23	15	25	28	18	31	36		
Standby Power Consumption		≤0.5W @220Vac; dims to off													
12V AUX Output	Output Voltage		+12Vdc (11-14V)												
	Output Current		200mA max.												
	Dynamic Load		Please make sure that it matches the LED driver.												
	Ripple Voltage		≤1V												

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■ Electrical Characteristics

0-10V Dimming	Rec. Dimming Voltage	≤10V
	Dimming Range	10%-100%
PWM Dimming	PWM High	9.8V-10.2V
	PWM Low	0-0.3V
	Frequency	500Hz-3KHz
	Dimming Range	10%-100%
Rx Dimming	Resistance	0-100KΩ @DIM+souce current 100uA
	Dimming Range	10%-100%
Intelligent Emergency Control (Optional)	Emergency Switchover Time	≥3S @AC power failure switching to battery power supply (set via emergency power supply)
	Output Current	10% @set via PC software
	Auto-exit Time	2H @When the sensor does not detect a signal; configurable
	Access to Emergency Communications	Detect a PWM signal with 4Hz and a duty cycle of 20% four times @high level: 3-10V, low level: 0-0.3V
	Withdrawal from Emergency Communications	Detect a PWM signal with 1Hz and a duty cycle of 20% four times @high level: 3-10V, low level: 0-0.3V
Timing Curve (Optional)		By programming, set via program
Protection	Surge	L-N: 6KV (2Ω), L/N-PE: 6KV (12Ω), LED+/LED- -PE residual voltage ≤2KVac
	Open Circuit	Open-circuit voltage ≤350Vdc
	Overtemperature	When the tc reaches 97°C±5°C, the power drops by 50% (restorable)
	Short Circuit	The LED driver will recover by itself and will not be damaged even in the state of short circuit for a long time. (Auto-recovery)

■ Electrical Characteristics

Environment Description	Operating Temperature	Tc: -40°C~+90°C (If it exceeds 50°C, it should be controlled according to the test temperature.)
	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
Safety & EMC	Certifications 1	FCC, UL
	Certifications 2 (Optional)	TUV-ENEC, CE, RCM, SAA, CB
	Withstanding Voltage	L/N-PE: 1.6KVac, <5mA, 60S; L/N-DIM: 1.6KVac, <5mA, 60S; DIM-PE: 1.6KVac, <5mA, 60S
	Grounding Resistance	≤0.1Ω @25A/60S
	Insulation Resistance	L/N-PE, L/N-DIM, DIM-PE: ≥100MΩ@500Vdc/60S
	Safety Standards	IEC/EN 61347-2-13, IEC/EN 61347-1, IEC/EN 62493 IEC/EN 62384 AS 61347.1, AS 61347.2.13 UL 8750 CSA C22.2 no.250.13
	EMI	EN 55015, EN 61547, EN 61000-3-2,3 FCC: PART 15 CLASS B @120Vac FCC: PART 15 CLASS A @277Vac
	EMS	According to IEC61000-4-2, 3, 4, 5, 6, 8, 11, 12 CE-EMC/RCM: EN61000-4-2, 3, 4, 5, 6, 11
	Ringing Wave	6kV
	ESD	Air 8kV, touch 4kV
Other Parameters	IP Rating	IP65
	RoHS	RoHS 2.0 (EU) 2015/863
	Warranty	50,000H (Tc≤85°C)
	MTBF	>1000Khours@Telcordia SR-332 Issue4
Test 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.	
Test Remark	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.	

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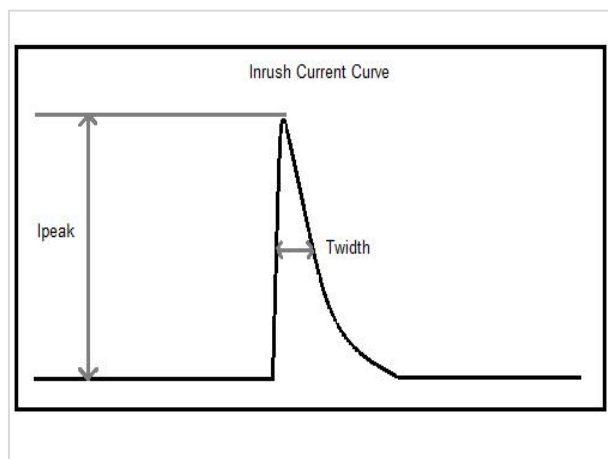
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■ Electrical Characteristics

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. When using the LED driver, please pay attention that the total output power should not exceed the maximum rated output power, otherwise the warranty service of LED driver will fail. 5. Because there is parasitic capacitance between LEDs and the PCBA, there will be a slight flicker when the PCBA (the light fixture) is grounded and AC is powered on. During the dimming-to-off process, the afterglow current fluctuates, causing a slight flicker, which stabilizes after approximately 5 seconds. It's normal for non-isolated products. To avoid this phenomenon, please choose a light board with lower parasitic capacitance. 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 be >2.5kVac.
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■ Product Characteristics Curves (Typical)

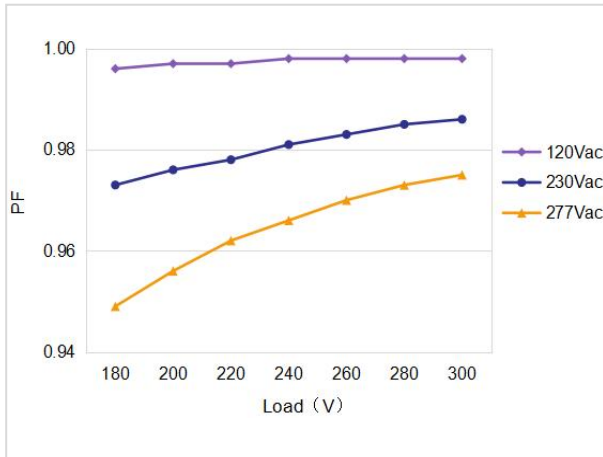
Input Inrush Current



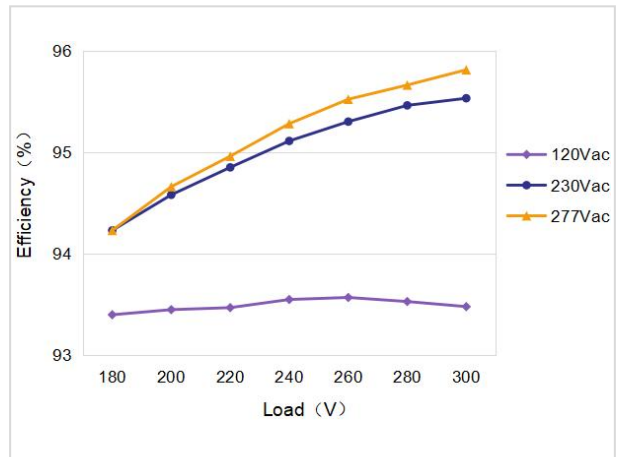
Vin	Ipeak	Twidth
120Vac	54.01A	84uS
230Vac	83A	100uS
277Vac	104A	102uS

■ Product Characteristic Curves

PF Curve



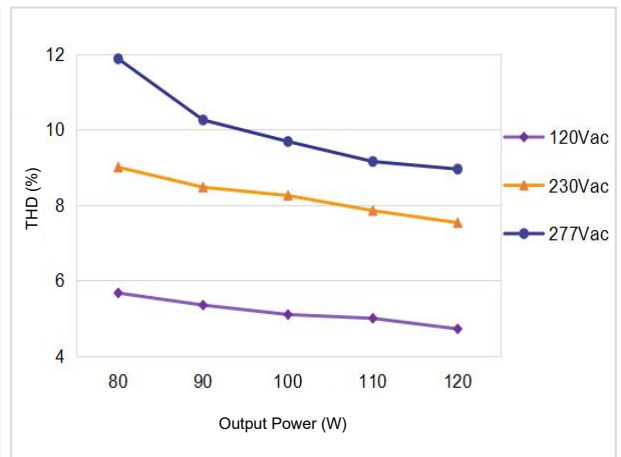
Efficiency Curve



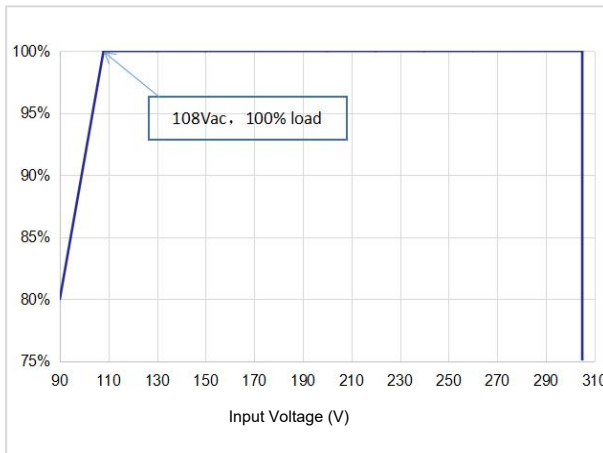
Power Curve



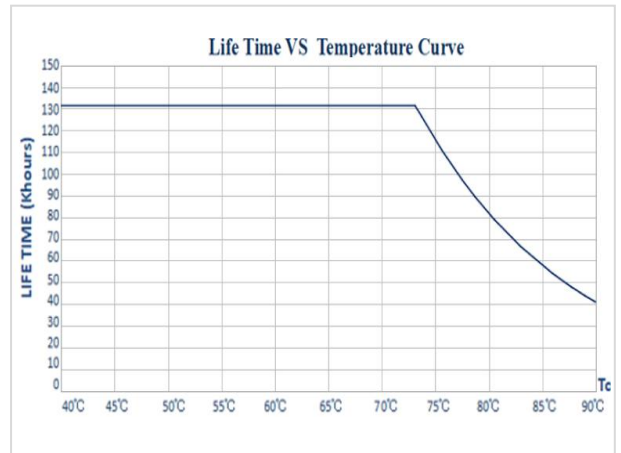
THD



Load Derating Curve



Lifetime Curve



Input: 120Vac/60Hz; output: 240Vdc/500mA
(the chart is for reference only)

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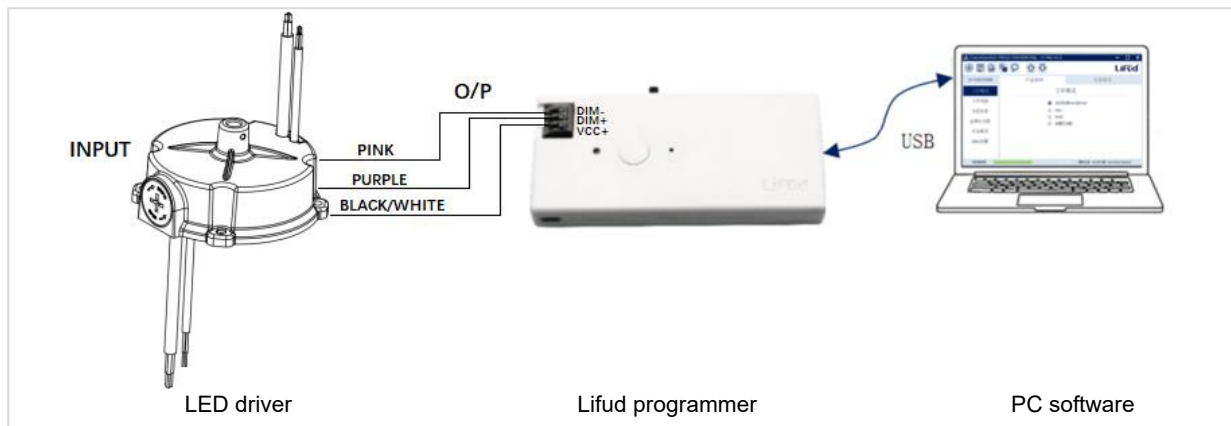
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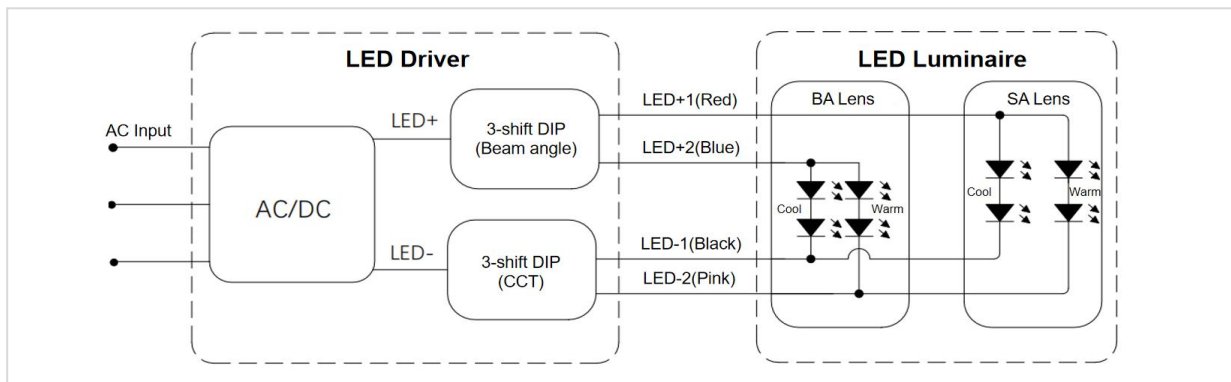
■ Programmer tool and software

Product	Name	Brand	Model	Software
	Lifud programmer	LIFUD	LF-SCS080C	LF-SmartSet

■ Programming Connection Diagram



■ CCT & Beam Angle Adjustment Wiring Instructions

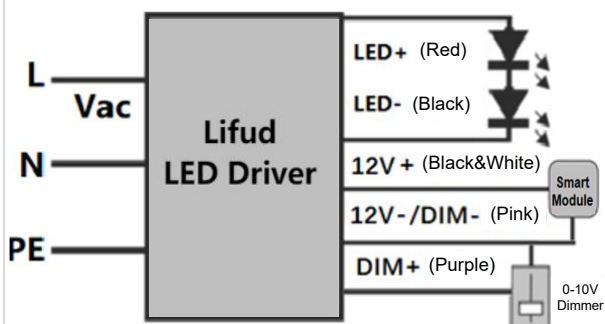


■ Dimming Operation Instructions

0-10V Dimming Operations

- 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 $1.0V \pm 0.15$, 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



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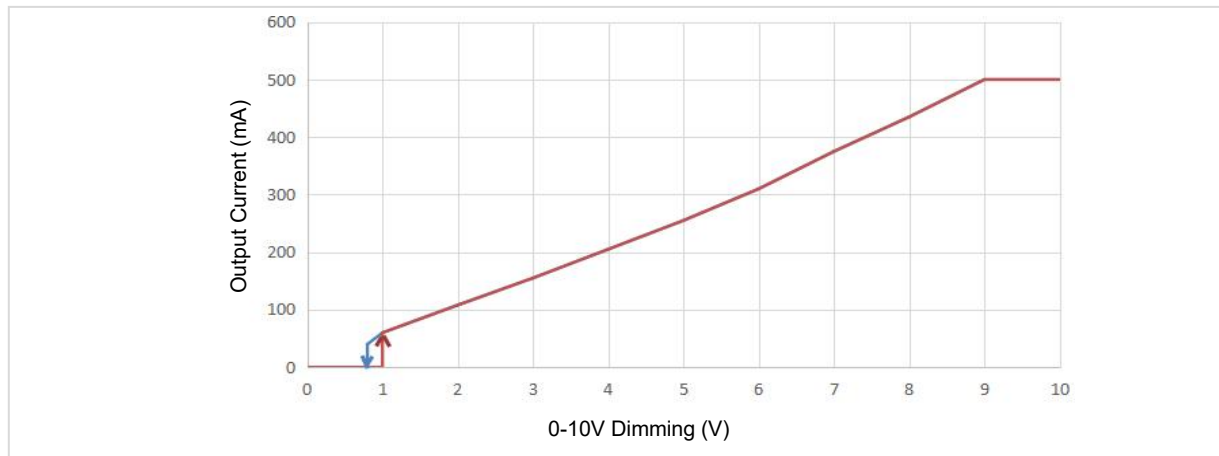
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■ Dimming Operation Instructions

Dimming Curve

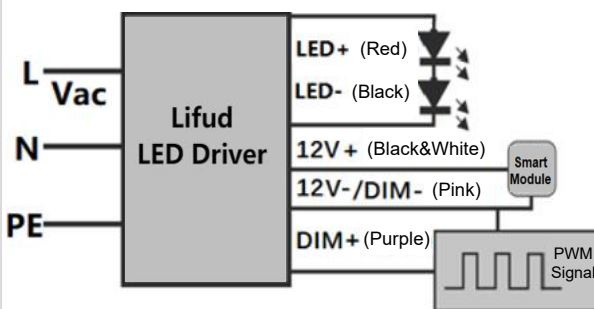


Input: 120Vac; output: 240Vdc/500mA
(this data is measured by Lifud 0-10V dimmer and the chart is for reference only)

PWM Dimming Operations

- Connect PWM signal to the DIM terminal.
- When the input duty cycle is $8\% \pm 1.5\%$, the light turns off; when it's $10\% \pm 1.5\%$, the light turns on.
- Dimming depth: 10% (typical value), the maximum is $<12\%$
- Compatible signal range: 500-3000(Hz), high: 9.8-10.2(V), low: 0-0.3(V)
- DIM+/- (without signal connected): 100% rated current

Wiring Diagram of PWM Dimming



Dimming Curve



Input: 120Vac; output: 240Vdc/500mA
(this data is measured by PWM signal generator TektronixL and the chart is for reference only)

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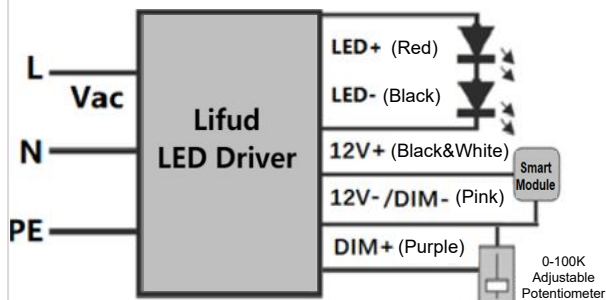
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■ Dimming Operation Instructions

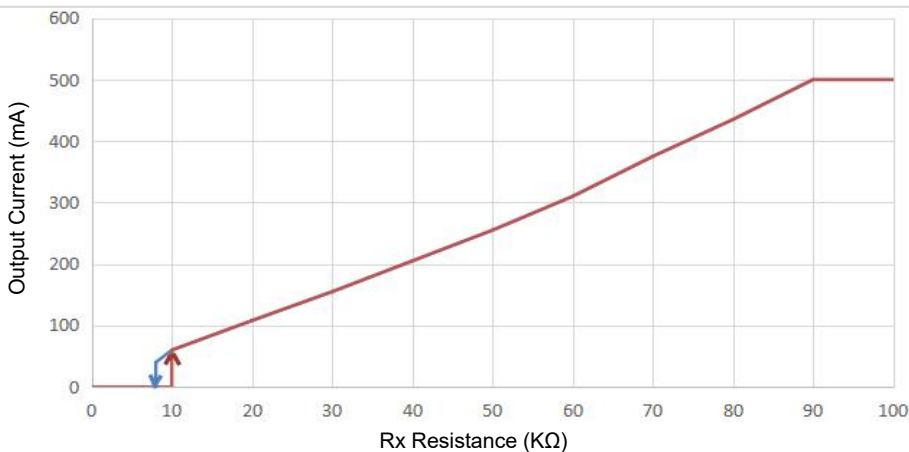
Rx Dimming Operations

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

Wiring Diagram of Rx Dimming



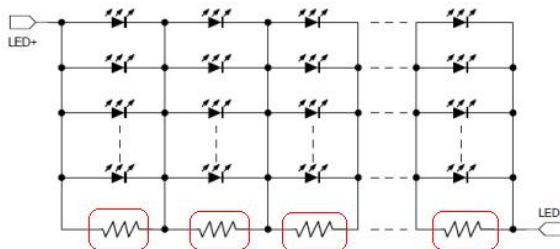
Dimming Curve



Input: 120Vac; output: 240Vdc/500mA
(this data is measured by resistance dimmer and the chart is for reference only)

■ 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 their resistance should match according to the parameters of aluminum substrate and LED beads. (reference resistance: 3-5KΩ/size: 1206)



■ Structure & Dimensions (unit: mm)

Wire Specifications

Type (Optional)	Spec	Color	Length	Peeled	Tinned
Input Wire (US-Standard)	3*18AWG $\Phi 7.8 \pm 1\text{mm}$	AC-L Black; AC-N White; PE Green	$300 \pm 10\text{mm}$ (L1)	$40 \pm 4\text{mm}$ (X1)	$10 \pm 1.5\text{mm}$ (Y1)
Input Wire (EU-Standard)	3*1.0mm ² $\Phi 7.2 \pm 1\text{mm}$	AC-L Brown; AC-N Blue; PE Yellow&Green			
Output Wire 1 (US-Standard)	2*18AWG $\Phi 7.2 \pm 1\text{mm}$	LED+ Red; LED- Black	$200 \pm 10\text{mm}$ (L2)	$35 \pm 4\text{mm}$ (X2)	$10 \pm 1.5\text{mm}$ (Y2)
Output Wire 1 (EU-Standard)	2*1.0mm ² $\Phi 6.8 \pm 1\text{mm}$	LED+ Brown; LED- Blue			
Output Wire 2 (US-Standard; CCT adjustable via DIP)	3*18AWG $\Phi 7.8 \pm 1\text{mm}$	LED+ Red; LED-1 Black; LED-2 Pink	$200 \pm 10\text{mm}$ (L2)	$35 \pm 4\text{mm}$ (X2)	$10 \pm 1.5\text{mm}$ (Y2)
Output Wire 2 (EU-Standard; CCT adjustable via DIP)	3*1.0mm ² $\Phi 7.2 \pm 1\text{mm}$	LED+ Brown; LED-1 Blue; LED-2 Black			
Output Wire 3 (US-Standard; CCT&angle adjustable via DIP)	4*18AWG $\Phi 8.4 \pm 1\text{mm}$	LED+1 Red; LED-1 Black; LED-2 Pink; LED+2 Blue	$200 \pm 10\text{mm}$ (L2)	$35 \pm 4\text{mm}$ (X2)	$10 \pm 1.5\text{mm}$ (Y2)
Output Wire 3 (EU-Standard; CCT&angle adjustable via DIP)	4*1.0mm ² $\Phi 8.0 \pm 1\text{mm}$	LED+1 Brown; LED-1 Blue; LED-2 Black; LED+2 Gray			
Dimming Wire & AUX Output Wire	2*22AWG $\Phi 5.0 \pm 1\text{mm}$ 3*22AWG $\Phi 5.0 \pm 1\text{mm}$	DIM+ Purple; DIM- Pink (L3) DIM+ Purple; DIM- Pink; 12V+ Black & White (L4)	$280 \pm 10\text{mm}$ (L3) $200 \pm 10\text{mm}$ (L4)	$40 \pm 4\text{mm}$ (X3) $35 \pm 4\text{mm}$ (X4)	$10 \pm 1.5\text{mm}$ (Y3/Y4)

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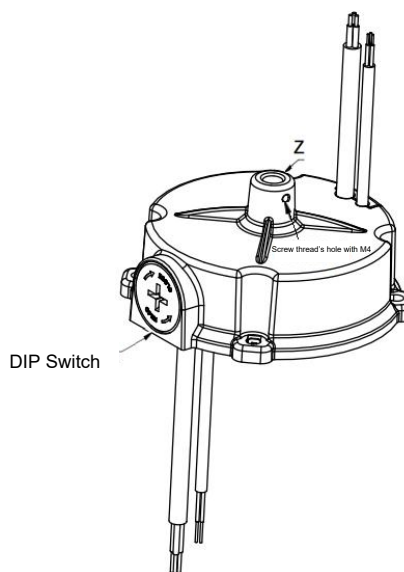
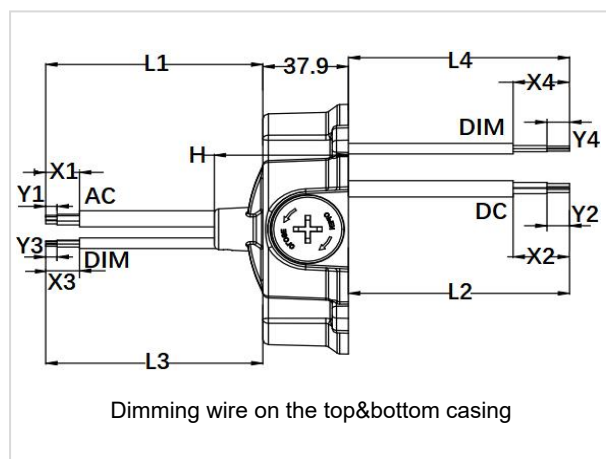
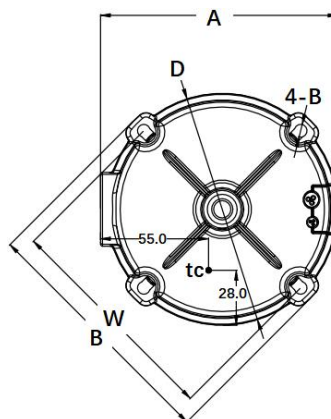
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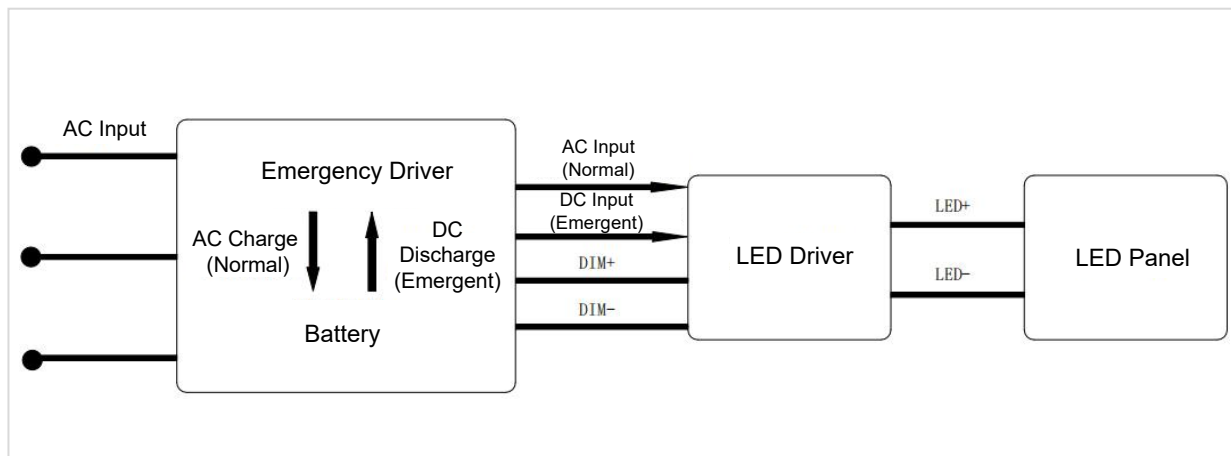
Product Dimensions & Structure Diagrams

Description	Symbol	Unit (mm)
Casing Size	A	121.0±0.2
Casing Size	B	127.5±0.2
Diameter of Casing	D	Φ117.9±0.2
Diameter of Fixed Screw Hole	4-B	Φ6.5±0.2
Diameter of Assembly Hole	W	113±0.2
Ring's Hole	Z	M10*1.5
Casing Height	H	59.4±0.2

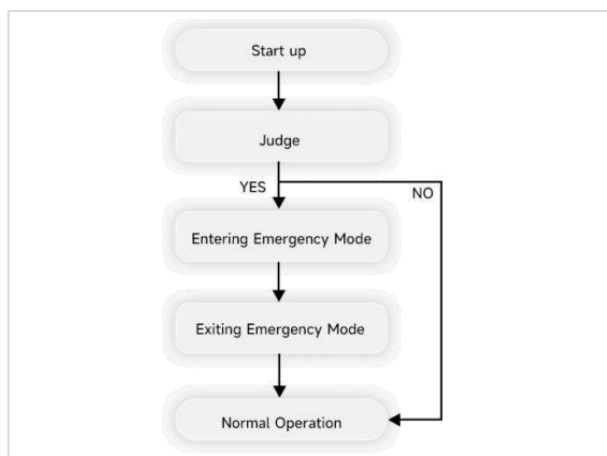


■ IEC (Intelligent Emergency Control) Description

Connection Diagram



Emergency control logical diagram



Technical Specifications for Emergency Lighting Communication Protocol

(1) Definition of Communication Levels: Active High Level: 3V-10V; Active Low Level: 0V-0.6V;

(2) Duty Cycle of Communication Signal: 20%;

(3) Entering Emergency Mode:

The emergency driver supply will send a PWM signal with 4Hz and a duty cycle of 20% after AC power failure. The LED driver must continuously detect this signal four times before entering the emergency mode.

(4) Exiting Emergency Mode:

Scenario 1: Upon restoration of AC, the emergency driver supply sends a PWM signal with 1Hz and a duty cycle of 20%. The LED driver must continuously detect this signal four times to exit the emergency mode.

Scenario 2: If it's timeout in the emergency state, the LED driver automatically exits the emergency mode after a default period of 2 hours (can be set; optional).

Notes:

In the absence of a detected signal from the sensor (dimming line is a short circuit), the LED driver automatically exits the emergency mode after 2 hours.

To ensure timely exit from the emergency mode, upon sensor signal detection (releasing the short circuit on the dimming line), the emergency driver supply continues to send the 1Hz exit signal for 2 hours after detecting the restoration of AC.

The LED driver is equipped with an emergency function switch that can be enabled through our PC software (default setting is "off"). For obtaining relevant emergency certifications, compatibility with the emergency driver supply system during certification is required.

When the emergency function is used, and the system is operating under no-load conditions or with the "DIM-OFF" function enabled, the system should delay switching to battery power supply for 15 seconds after AC power loss.

■ Packaging Specifications

Model	LF-H8-120U300AX
Carton Size	570*380*160 mm (L*W*H)
Quantity	15 pcs/layer; 1 layer/ctn; 15 pcs/ctn
Weight	0.66±0.1 kg/pc; 11.2±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 on 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 Tecnology Co., Ltd. reserves the right to interpret any content of this specification.