Features

- 0-10V/PWM/Rx dimmable (max. current settable via software)
- High efficiency up to 96%
- Dims to off without afterglow
- Surge protection: L-N: 6kV; L/N-GND: 10kV
- All-round protections: over temperature/open circuit/short circuit
- Suitable for Class I light fixtures
- Flicker free; IP67

IP67

Applications

· High pole light · stadium light · UV-LED · fish light · plant light

Descriptions

LF-FDA420 is a 3-in-1 dimming + 12V AUX output constant current LED driver. It features software programming of max. current, super-high efficiency, high PF and low THD.

Product Model

LF - FD A 420

- 420: output power: 420W
- A: 3-in-1 dimming + 12V
- F: non-isolated design; D: industrial constant current driver

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■ Electrical Characteristics

Model			LF-FDA420											
Output	Output Current		1600-2100mA											
	Default Current		1680mA±5%											
	Flicker		According to IEEE Std 1789											
	Output Voltage		180-260Vdc (LED)											
	Output Power		420W max. @120-277Vac											
	Ripple Current		<3% @≤120Hz											
	Start-up Time		120Vac<1S @full load; 230Vac<0.5S @full load											
	Linear Adjustment Rate		±5% @full load											
	Load Adjustment Rate		±5% @full load											
	Temperature Drift		±3% @Ta 25~50℃											
Input	Input AC Voltage		90-305Vac (rated voltage: 120-277Vac)											
	Input DC Voltage		127-305Vdc (rated voltage: 170-276Vdc)											
	Input Current		<4A											
	Input AC Rated Frequency		50/60Hz											
	PF		≥0.90/277Vac @full load											
	THD		≤15% 120Vac&230Vac @full load											
	Efficiency	MIN	≥93%/120Vac @260V/1600mA; ≥95%/230Vac @260V/1600mA											
		TYP	≥93.5%/120Vac @260V/1600mA; ≥95.5%/230Vac @260V/1600mA											
		MAX	≥96%/277Vac @260V/1600mA											
	Inrush Current		<60A/700uS @120Vac, <80A/700uS @230Vac, <100A/700uS @277Vac											
	Leakage Current		<0.75mA @277Vac											
	Loading Quantity on Circuit Breaker (PCS)		Model	B10	C10	D10	B16	C16	D16	B20	C20	D20	B25	C25	D25
			Qty@120Vac±10%	1	1	1	2	2	2	3	3	3	4	4	4
			Qty@230Vac±10%	2	3	3	3	5	5	4	6	6	6	8	8
			Qty@277Vac±10%	2	3	3	3	5	6	4	6	7	5	8	9
	Standby Power Consumption		≤0.5W@230Vac 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											
Protection Characteristics	Surge Protection		L-N: 6kV (2Ω); L/N-PE: 10kV (12Ω); DIM+ - DIM-: 1kV; DIM+/DIM- - N-PE: 2kV											
	Open Circuit Protection		Open-circuit voltage ≤310Vdc @120-277Vac											
	Short Circuit Protection		Hiccup mode (auto-recovery)											
	Over Temperature Protection		Tc>90℃ @The bottom of the driver needs to be padded with a radiator of 400*200*30mm or a radiator of equivalent size (reduced to 50% rated current, no flicker)											
	Leakage Protection (optional)		If the AC leakage current of the positive or negative pole of the output end and the light fixture to the ground is greater than 20mA, the leakage protection is triggered and the output is cut off for about 10S, and then the output is restored; if the leakage protection is triggered three times in succession, the driver will enter a self-locking protection state with no output until the input is cut off and restarted to restore.											

■ Electrical Characteristics

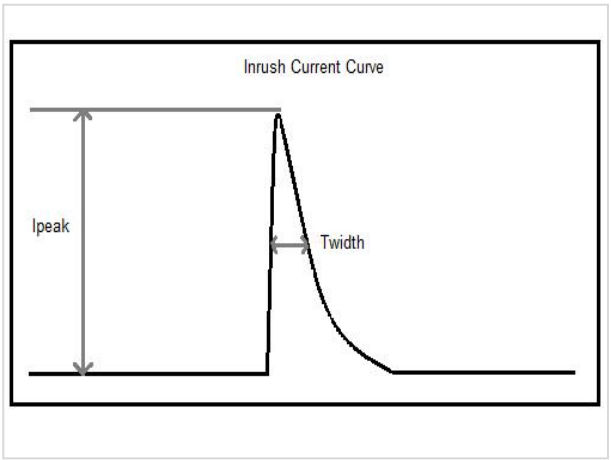
Environment Descriptions	Operating Temperature	-40℃~+40℃@90-108Vac; -40℃~+50℃@120-277Vac; the bottom of the driver needs to be padded with a radiator of 400*200*30mm or a radiator of equivalent size
	Operating Humidity	0~95%RH (no condensation)
	Storage Temperature/ Humidity	-40℃~+80℃ (6 months in Class I environment); 0~95%RH (no condensation)
	Atmospheric Pressure	86~106kPa
Safety & EMC	Certifications	TUV-ENEC, CE, RCM, SAA, CB, UKCA, 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
	Earth Resistance	≤0.1Ω @25A/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	CE-EMC/RCM: EN61000-4-2, 3, 4, 5, 6, 11 According to IEC61000-4-2, 3, 4, 5, 6, 8, 11, 12
	Ringing Wave	6kV
	ESD	Air 8kV, touch 4kV
Other Parameters	IP Rating	IP67
	RoHS	RoHS 2.0 (EU) 2015/863
	Warranty	5 years (Tc≤85℃)
	MTBF	>1000Khours@Telcordia SR-332 Issue4
Test Equipment	Digital power meter: CHROMA6530, digital power driver: CHROMA66205, oscilloscope: Tektronix DPO3014, DC electronic load: M9712B, LED board, constant temperature and humidity chamber; lightning surge generator: Everfine EMS61000-5B: fast transient 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℃, humidity of 50%, full load and input voltage of 230Vac.	

■ 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 would be failed. 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. The withstand voltage between LEDs and PCBA should be >2.5KVac.

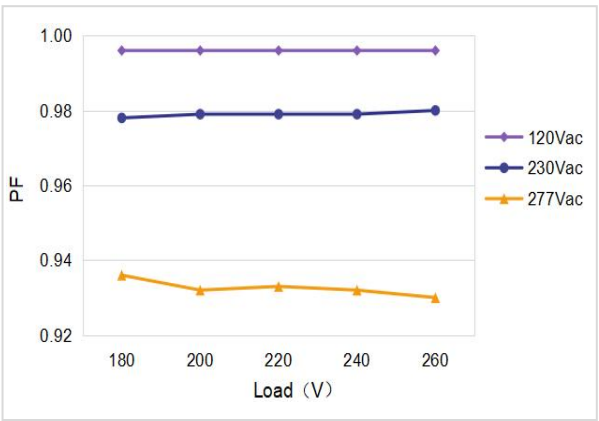
■ Product Characteristics Curves (Typical)

Input Inrush Current

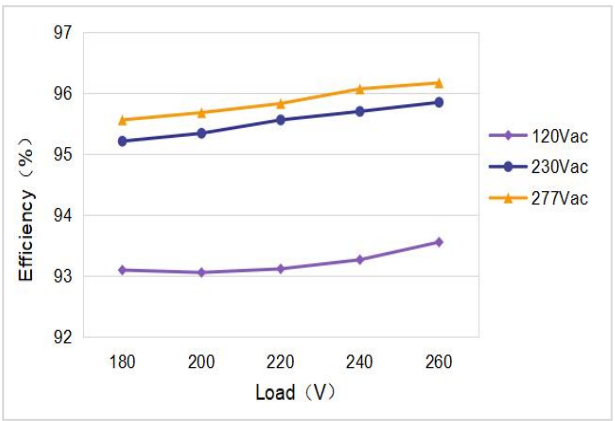


Vin	Ipeak	Twidth
120Vac	32A	500uS
230Vac	61A	500uS
277Vac	74A	500uS

PF Curve



Efficiency Curve



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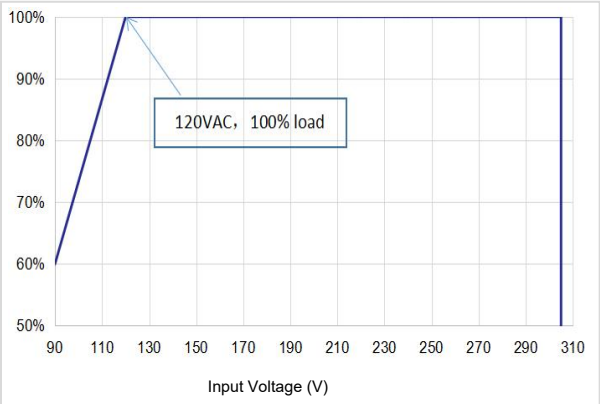
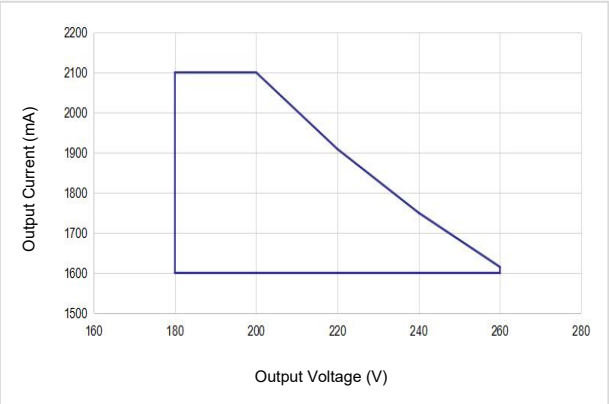
■ Product Characteristic Curves

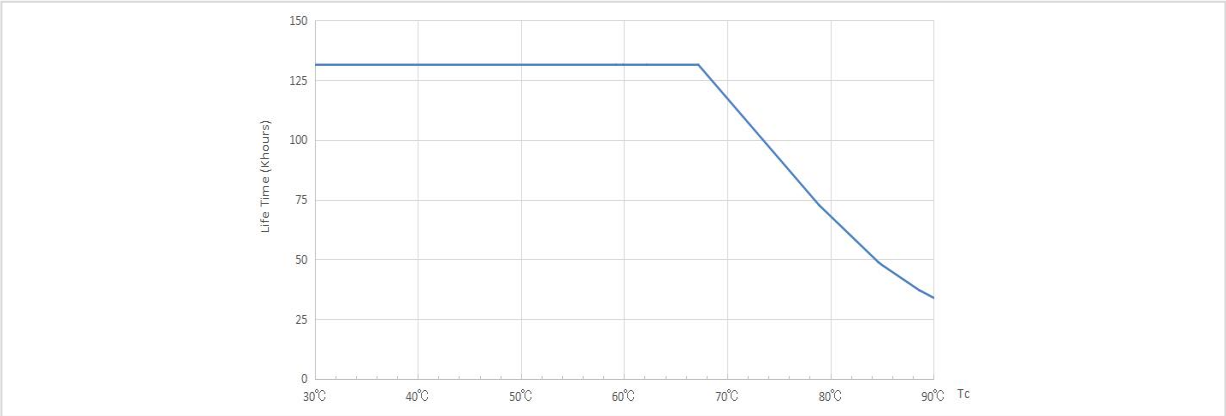
Load Derating Curve



Power Curve



Lifetime Curve



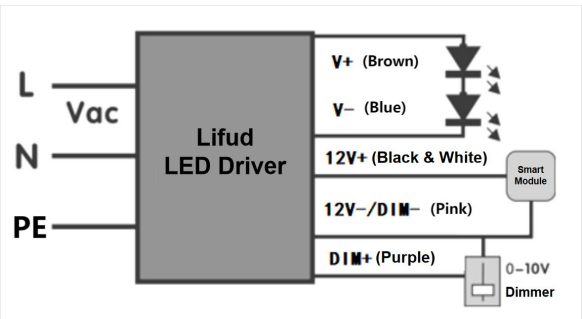
Input: 230Vac/50Hz; output: 200Vdc/2100mA
(The chart is for reference only)

■ 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±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



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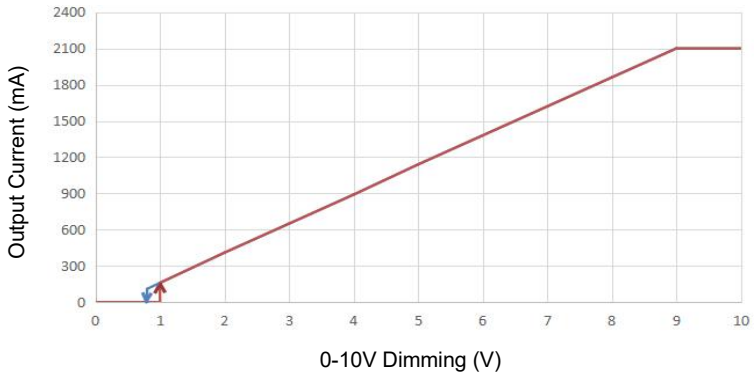
■ Dimming Operation Instructions

Dimming Curve

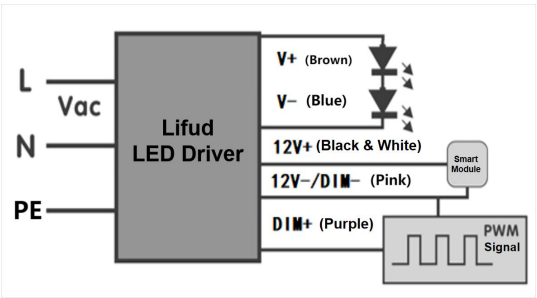


Input: 230Vac; output: 200Vdc/2100mA
(this data is measured by Lifud 0-10V dimmer and the chart is for reference only)

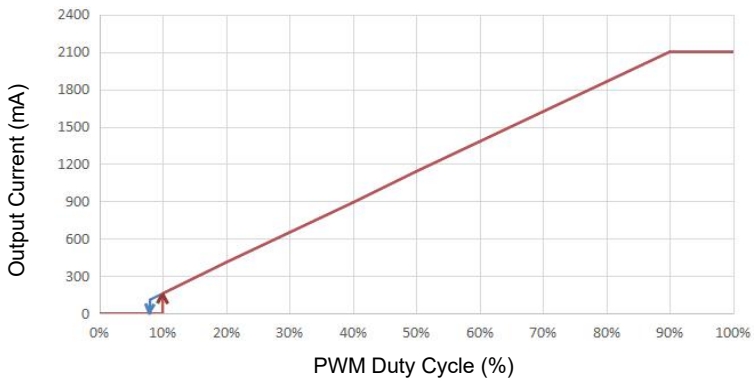
PWM Dimming Operations

- Connect PWM signal to DIM terminal.
- Dimming depth: 10% (typical value); the maximum is <12%
- Compatible signal range: 1000-3000(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: 230Vac; output: 200Vdc/2100mA
(this data is measured by PWM signal generator Tektronix and the chart is for reference only)

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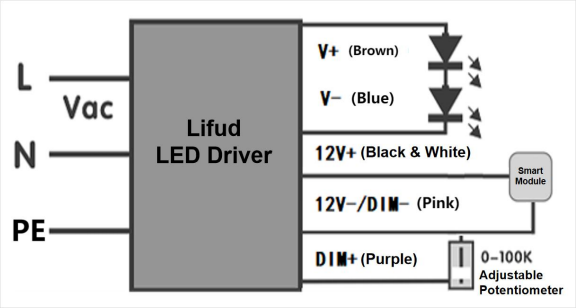
■ Dimming Operation Instructions

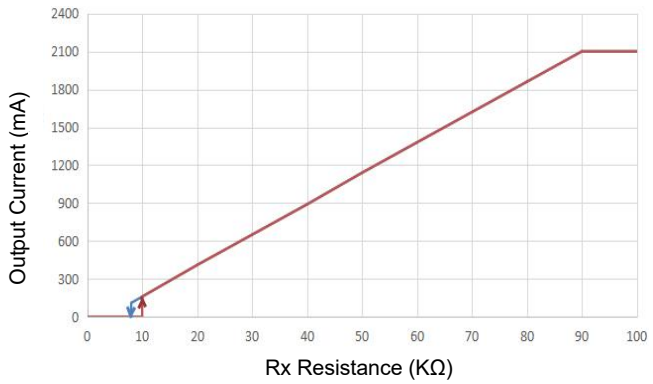
Rx Dimming Operations

- Connect Rx signal to 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



Dimming Curve



Input: 230Vac; output: 200Vdc/2100mA
(this data is measured by resistance dimmer and the chart is for reference only)

■ Structure & Dimensions (unit: mm; tolerance: ±0.2mm)

Wire Specifications

Type	Input Wire	Output Wire	Dimming Wire & AUX Output Wire
FDA	3*1.0mm^2 Φ8.2±1mm	2*1.0mm^2 Φ7.7±1mm	3*22AWG Φ5.0±1mm
Color	AC-L Brown; AC-N Blue; PE Yellow & Green	LED+ Brown; LED- Blue	DIM+ Purple; DIM- Pink; +12V Black & White
Length	300±10mm (L1)	300±10mm (L2)	250±10mm (L3)
Peeled	40±5mm (X1)	35±5mm (X2)	40±5mm (X3)
Tinned	10±1.5mm (Y1)	10±1.5mm (Y2)	15±1.5mm (Y3)

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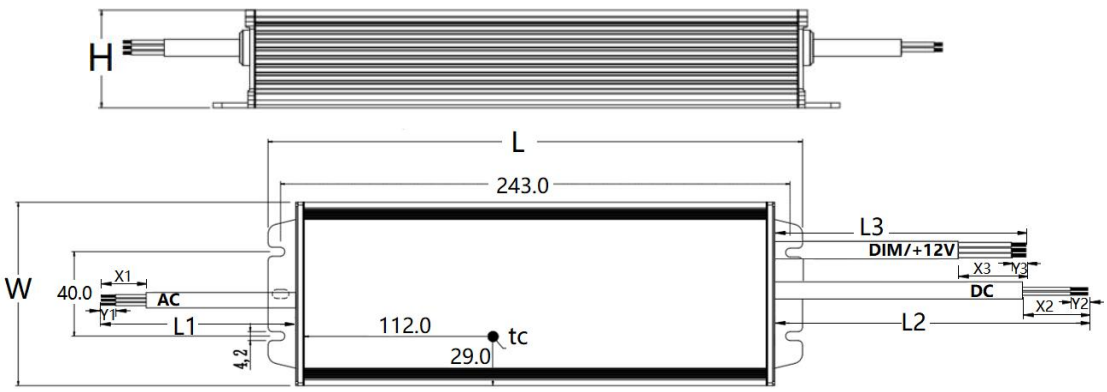
■ Structure & Dimensions (unit: mm; tolerance: ±0.2mm)

Casing Dimensions

Description	Symbol	Unit (mm)
Length	L	253
Width	W	69.5
Height	H	36.6

Structure Diagram



Tc point is at the top of the casing

■ Packaging Specifications

Model	LF-FDA420
Carton Size	465*365*185mm (L*W*H)
Quantity	4 pcs/layer; 3 layers/ctn; 12 pcs/ctn
Weight	1.0±0.1 kg/pc; 13.5±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 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 Technology Co., Ltd. reserves the right to interpret any content of this specification.

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