Features

- DALI or PUSH dimmable
- Standby power consumption <0.35W
- Dim to off without afterglow
- Supports 2 sets of light fixtures connected in series
- External resistor to set output current
- Adjustable current and output lumen compensation set via programmer
- Supports logarithmic dimming (default setting) and linear dimming
- 5-year warranty (please refer to the warranty condition)

Applications

· Indoor office lighting · hospitality lighting · residential lighting · others

Descriptions

LF-FSD090YA is a 90W (max.) non-isolated DALI dimmable constant current LED driver. Its rated input voltage ranges from 220 to 240Vac, output voltage from 54 to 240Vdc and output current from 250 to 1050mA. It features 90W constant power output. It is suitable for Class I light fixtures, including linear light, tri-proof light, etc.

Product Model

LF - FSD 090 YA

- Y: complies with certifications; A: serial number
- 090: output power: 90W
- F: non-isolated design; SD: indoor dimmable LED driver

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■ Electrical Characteristics

Model		LF-FSD090YA				
Output	Output Voltage	54-240Vdc				
	Output Current	250-1050mA①				
	Default Output Curent	250mA②				
	Flicker Index	Complies with IEEE1789 standard				
	IEC-PSt	≤1				
	CIE (SVM)	≤0.4				
	Output Current Ripple	<1%@100Hz				
	Current Tolerance	±5%				
	Temperature Drift	±10%				
Input	Input Voltage	220-240Vac (voltage limit: 198-264Vac)				
	DC Input Voltage	180-264Vdc				
	Input Frequency	0/50/60Hz				
	Input Current	0.5A max. @AC input; 0.37-0.55A @DC input				
	PF	≥0.95				
	THD	≤10%				
	Efficiency	≥93%				
	Inrush Current	≤60A & 200uS				
	Loading Quantities of Circuit Breaker	Model	B10	C10	B16	C16
		Quantity (pcs)	12	19	21	31
	Leakage Current	≤0.7mA				
	Standby Power Consumption	≤0.35W (DALI OFF)				
Protections	Open Circuit	<250V				
	Short Circuit	Hiccup mode (auto-recovery)				
Environment Descriptions	Operating Temperature	-30℃ - +50℃				
	Operating Humidity	20-90%RH (no condensation)				
	Storage Temperature/ Humidity	-30℃ - 80℃ (6 months in Class I environment); 10-95%RH (no condensation)				
	Atmospheric Pressure	86-106kPa				

■ Electrical Characteristics

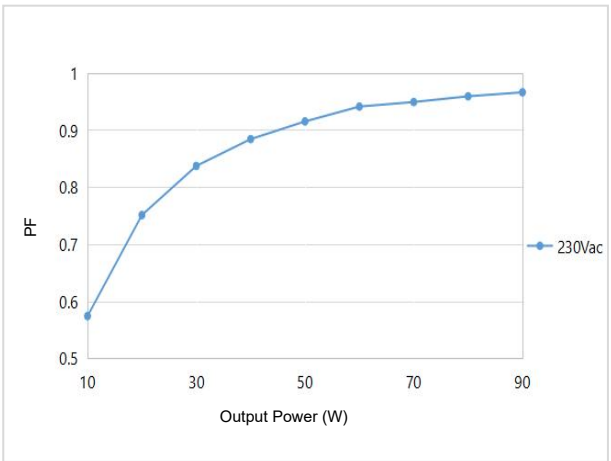
Safety and EMC	Certifications	ENEC, CE, UKCA, CB, RCM, EL
	Withstanding Voltage	I/P-PG: 1.5kV 5mA 60S
	Insulation Resistance	I/P-PG O/P-PG: >100MΩ@500Vdc
	Safety Standards	ENEC: EN61347-1: 2015, EN61347-2-13: 2014/A1: 2017, EN62384 2016/A1: 2009 CE-LVD: EN61347-2-13: 2014/A1: 2017, EN61347-1: 2015, EN62493: 2015 CB: IEC61347-1: 2015, IEC61347-2-3: 2014, IEC 61347-2-13: 2014/AMD1: 2016 RCM: AS 61347.2-13: 2018 EL: IEC61347-2-13: 2014 Annex J UKCA: BS EN IEC 55015: 2019+A11: 2020, BS EN 61547: 2009, BS EN IEC 61000-3-2: 2019, BS EN 61000-3-3: 2013/A2: 2021
	EMI	CE-EMC/RCM: EN55015, EN61000-3-2, EN61000-3-3
	EMS	CE-EMC/RCM: EN61000-4-2, 3, 4, 5 (lightning strike L-N: 1kV, L/N-PG: 2kV), 6, 11
Other Parameters	IP Rating	IP20
	RoHS	RoHS 2.0 (EU) 2015/863
	Warranty Condition	5 years (Tc ≤90℃)
	Lifetime	100,000 hours (subject to the requirements specified in this data sheet)
	Compatibility of DALI Dimming③	Yuanhao Master, Simon Master, Philips Master DDBC120-DALI, OSRAM Master, Helvar Master 905 Router, Tridonic Master and HDL MC64-DALI431 Master
	DALI Standard	IEC 62386-101 102 207: DALI 2.0
Testing Equipment	AC power source: CHROMA6530, digital power meter: CHROMA66202, oscilloscope: Tektronix DPO3014, DC electronic load: M9712B, LED board, constant temperature and humidity chamber; Everfine EMS61000-5B, fast transient generator: Everfine EMS61000-4A, spectroanalyzer: KH3935, hi-pot tester: TH9201B, flicker tester (flicker-free coefficient test) 60N-01, etc.	
Testing 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/50Hz.	

■ Electrical Characteristics

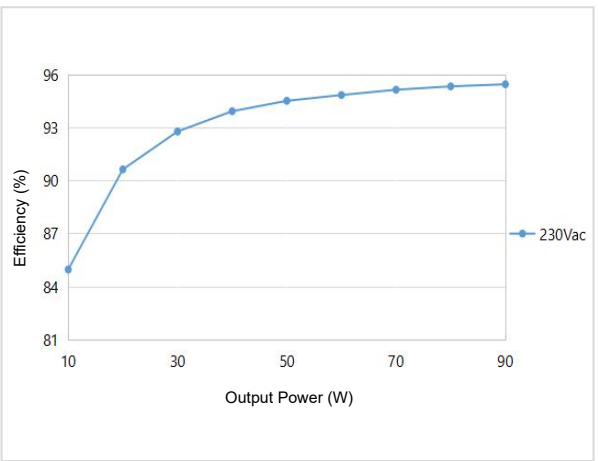
Additional Remarks	1. It is recommended that user install the over voltage protection, under voltage protection and surge protection devices in the power supply circuits of light fixtures to ensure electricity safety. 2. The LED driver used in combination with the end device is one of the accessories 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. 3. The test conditions of the circuit breaker configuration quantity are the same as those of the inrush current. 4. 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. 5. In no-load condition, it is recommended that user not directly connect the LED driver to the light fixture in case that the light fixture is damaged. 6. It is recommended that the withstanding voltage of LEDs and aluminum substrates be >3kVac. 7. It is recommended to install double-pole switch at AC input terminal. If user uses the single-pole switch, make sure to connect it to wire L (live wire), otherwise the afterglow of light fixture would be incurred after the AC is disconnected. Note: ① When the load voltage of LED driver ranges from 54 to 86Vdc, the LED driver outputs with the maximum constant current of 1050mA; when the load voltage is >86Vdc, the LED driver outputs with the constant power of 90W. ② The default current of LED driver is 250mA and its output current has two settings: 1) Set by Lifud programmer and DALI programming software 2) Set by the external resistor at LEDset terminal ③ When using other DALI masters, please test their compatibilities with Lifud LED driver in advance.

■ Product Characteristic Curves

PF Curve

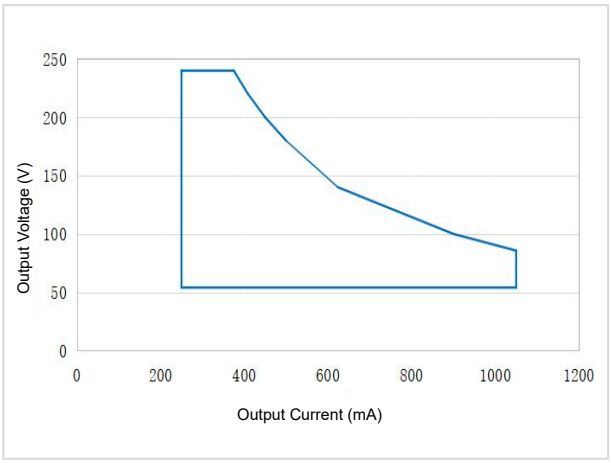


Efficiency Curve

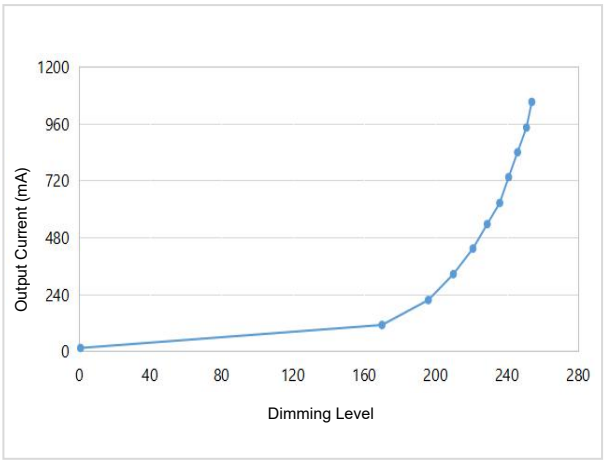


■ Product Characteristic Curves

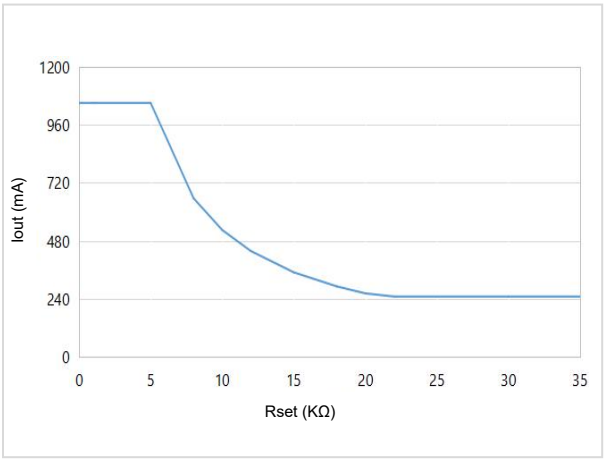
Working Curve



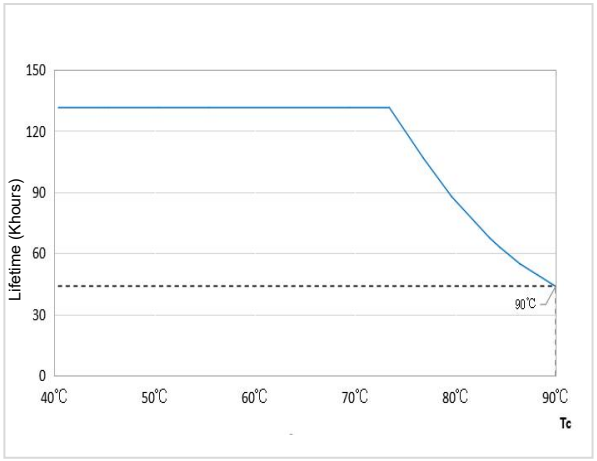
Dimming Curve



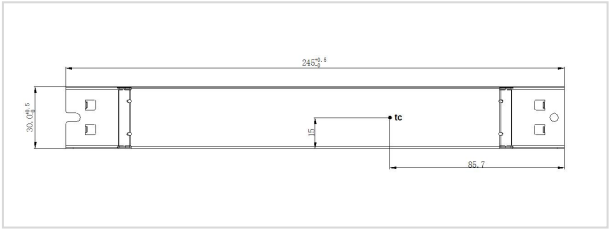
Output Current & Rset Curve



Lifetime Curve



Tc Point (unit: mm)



■ Product Terminal Definition

Product Terminals

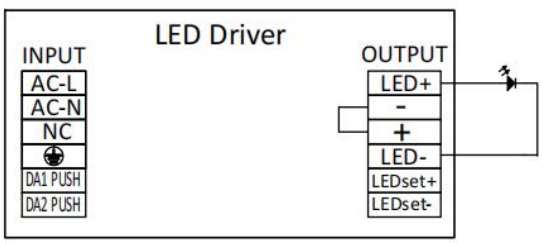
INPUT

AC-L (grey terminal)	Input terminal of AC live wire
AC-N (grey terminal)	Input terminal of AC neutral wire
⏚ (grey terminal)	Input terminal of grounding wire
DA1 PUSH (green terminal)	DALI 1 / PUSH dimming input terminals
DA2 PUSH (green terminal)	DALI 2 / PUSH dimming input terminals

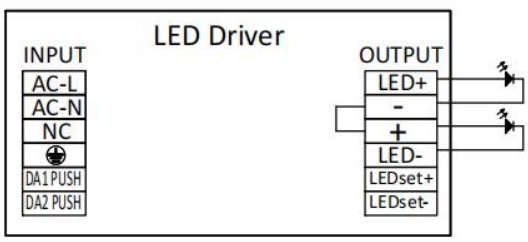
OUTPUT

LED+ (red terminal)	Positive electrode output of LED driver
- (black terminal)	Negative electrode of LED board in series connection
+ (red terminal)	Positive electrode of LED board in series connection
LED- (black terminal)	Negative electrode output of LED driver
LEDset+ (orange terminal)	Access terminal 1 of adjustable power via resistor
LEDset- (orange terminal)	Access terminal 2 of adjustable power via resistor

Wiring Diagram of Product Output Terminal



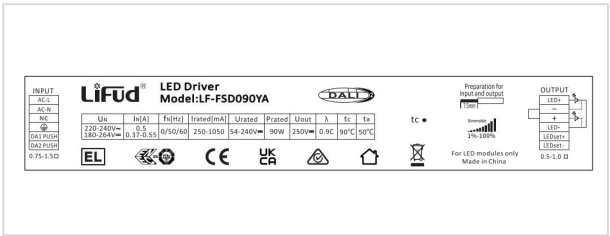
Wiring method of single light fixture



Wiring method of double light fixtures

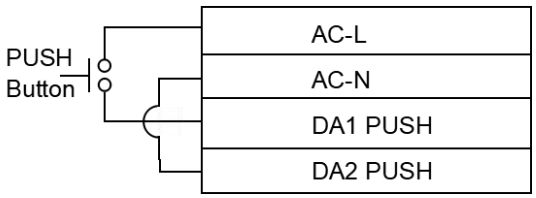
⚠ Do not connect LED set+ to LED- in case that the LED driver is damaged.

■ Label



■ Dimming Operation Instructions

Wiring Diagram of PUSH Dimming



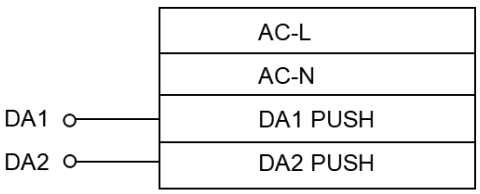
Operations of PUSH Dimming

Operation	Duration	Function
Instant Push	0.1-0.5 sec	LED light on/off
Long Push	0.6-9 sec	Dim up/down
Long Push	0.6-9 sec	Turn off the light via PUSH switch; long press the PUSH button to enable synchronous dimming of all luminaires from the minimum brightness
Reset Push	>15 sec	Long press the PUSH button to reset the brightness of all luminaires to 50%

The PUSH operation won't cause any variations on LED driver if it's less than 0.1S.

- The PUSH switch is connected in series between AC-L and DALI1 PUSH terminals; short circuit AC-N and DALI2 PUSH terminals.
- Minimum dimming depth of PUSH dimming: 1% (@ maximum output current)
- The PUSH dimming mode has the memory function in case of any power failure. When the LED driver is powered on again, the light will return to the previous state before power failure.
- The present dimming direction of PUSH dimming is opposite to the former one.
- Maximum length of leading wire from the PUSH switch to the farthest LED driver: 135m; wire diameter: 16-22AWG.

Wiring Diagram of DALI Dimming



⚠ DALI and PUSH dimming cannot be used at the same time in case that the DALI dimming master is damaged.

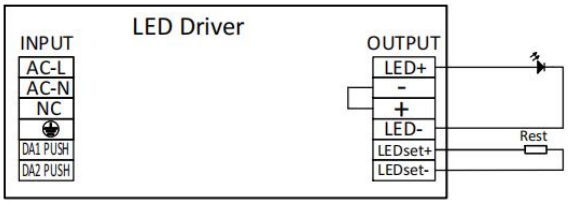
■ Dimming Operation Instructions

Operations of DALI Dimming

- Connect DALI signal to DA1 PUSH and DA2 PUSH terminals.
- DALI protocol includes 16 groups and 64 IP addresses.
- Maximum number of LED drivers connected in parallel in DALI dimming mode: 64 pcs.
- Minimum dimming depth of DALI dimming: 1% (@ maximum output current; different masters may have different dimming depths).

■ LEDset Current Setting Instructions

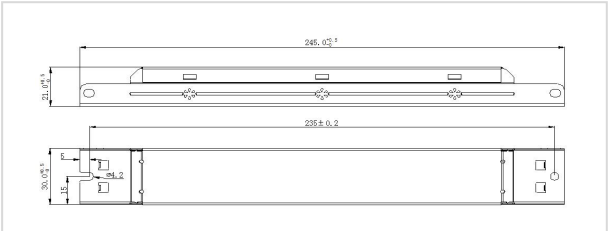
Wiring Diagram of LEDset



- Default current: 250mA
- The LED driver outputs with the maximum current of 1050mA when the resistance value of LEDset ranges from 0 to 5KΩ
- The LED driver outputs with the current that ranges from 250 to 1050mA when the resistance value of LEDset ranges from 5 to 21KΩ [reference formula: Iout=(5/Rset)*1050mA; unit of Rset: KΩ]
- The LED driver outputs with the minimum current of 250mA when the resistance value of LEDset >21KΩ.

■ Structure & Dimensions (unit: mm)

Overall Appearance Dimension (L*W*H)	Distance Between 2 Positioning Holes	Diameter of Positioning Hole
245*30*21 mm (±0.5mm)	235*15 mm	4.2 mm



■ Packaging Specifications

Model	LF-FSD090YA
Carton Size	385*285*210mm (L*W*H)
Quantity	8 pcs/layer; 6 layers/ctn; 48 pcs/ctn
Weight	0.2 kg/pc; 10±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.

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