

LF-A1-075U105A/C

# Programmable IP67 Isolated LED Driver | Constant Current - Dimmable



## Product family features

- Low THD<10% @60% load, 277Vac
- Rated input voltage: 120-277Vac
- Ta: -40~+60℃
- Ripple current <3%
- 3-in-1 dimming + time dimming+12V AUX output (A version), 3-in-1 dimming + time dimming (C version)
- Standby power consumption≤0.5W
- All-round protections: short circuit, open circuit, over-temperature
- IP67, suitable for Class I light fixtures
- 5 years guarantee

## Product family benefits

- High efficiency
- Flicker free
- Long lifetime and high reliability
- Isolated

## Typical applications

- For shoebox lights, flood lights, street lights and tunnel lights
- For street lighting

## Product parameters

- Output current 300-1050mA
- Output power 10.8-75W
- Input voltage 120-277Vac
- Output voltage 36-108Vdc
- Efficiency 91.5%

## Electrical data

### Input data

Rated AC input voltage	120 ... 277V	
AC voltage range	90 ... 305V	
Rated DC input voltage	169 ... 391V	
DC voltage range	127 ... 391V	
Mains frequency	50/60Hz	
Power factor	$\geq 0.9/277V_{ac}$ @ 60% load	
Current tolerance	$I_o \geq 600mA \pm 5\%$ ; $< 600mA \pm 35mA$	
Linear adjustment rate	$\pm 5\%$ @ full load	
Load adjustment rate	$V_o$ : 50-108Vdc $\pm 5\%$ ; 36-108Vdc $\pm 7\%$	
Efficiency	91.5% <sup>1)</sup>	
Input current	1.0A Max	
Inrush current	80A <sup>2)</sup>	
Loading number on circuit breaker 10 A (B)	9PCS @120Vac $\pm 10\%$	9PCS @230Vac $\pm 10\%$
Loading number on circuit breaker 10 A (C)	9PCS @120Vac $\pm 10\%$	15PCS @230Vac $\pm 10\%$
Loading number on circuit breaker 16 A (B)	14PCS @120Vac $\pm 10\%$	14PCS @230Vac $\pm 10\%$
Loading number on circuit breaker 16 A (C)	14PCS @120Vac $\pm 10\%$	24PCS @230Vac $\pm 10\%$
Leakage current	$\leq 0.7mA$	
Standby power consumption	$\leq 0.5W$ @230Vac/50Hz, dim to off	

### Output data

Nominal output voltage	36... 108V
Nominal output current	300 ... 1050mA
Default output current	700mA $\pm 5\%$
Current setting	Programming
Maximum output power	75W Max @108-277Vac
Nominal output power	10.8...75W
Output ripple current (100 Hz)	$< 3\%$ @ $\leq 120Hz$
Flicker	According to IEEE Std 1789-2015
CIE SVM	$\leq 0.4$
IEC-Pst	$\leq 1$
Temperature tolerance	$\pm 10\%$ @25°C~60°C
Start-up time	230Vac $< 0.5S$ @full load
THD	$\leq 10\%$ @60% load Single harmonic: harmonic-C $\geq 60\%$ load/230Vac
Device power loss	/

### 12V AUX

Output voltage	+12Vdc (11-14V)
Output current	200mA max.
Dynamic load	Please make sure that it matches the LED driver.
Ripple voltage	$\leq 1V$

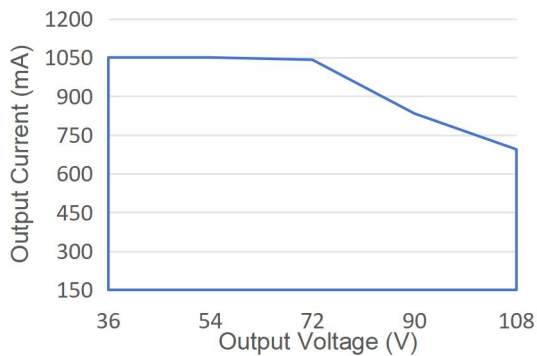
## Safety

<b>Withstanding voltage</b>	I/P-O/P, I/P-DIM: 3.15kV&5mA&60S; I/P-PE, DIM-PE, DIM-O/P: 1.5kV&5mA&60S; O/P-PE: 0.5kV&5mA&60S
<b>Surge capability (L-N)</b>	6 kV (2Ω)
<b>Surge capability (L/N-Ground)</b>	10 kV (12Ω)
<b>Insulation resistance</b>	I/P-PE, I/P-O/P, O/P-PE, I/P-DIM, O/P- DIM, DIM-PE: >100MΩ@500VDC
<b>Guarantee</b>	5 years <sup>3)</sup>

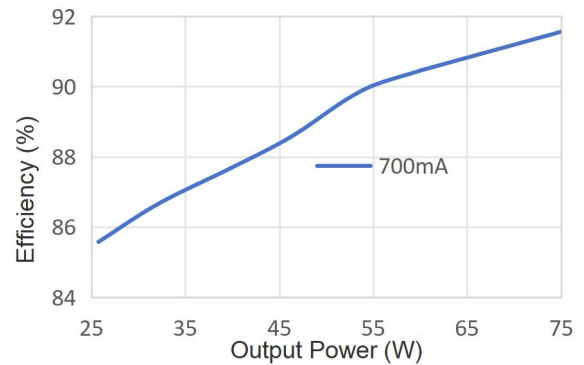
- 1) @output current 700mA, output voltage 108V, @277Vac
- 2)  $t = 350\mu s$
- 3) 5 years @ $T_c \leq 80^\circ C$

## Characteristic diagrams

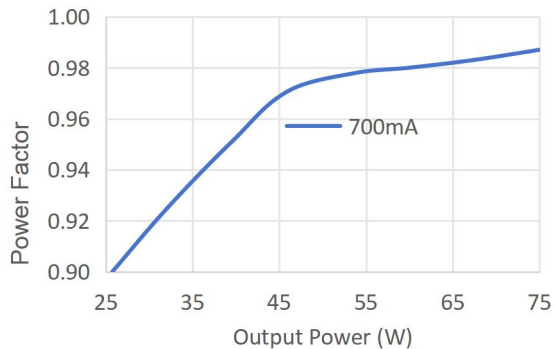
**Operating Window**



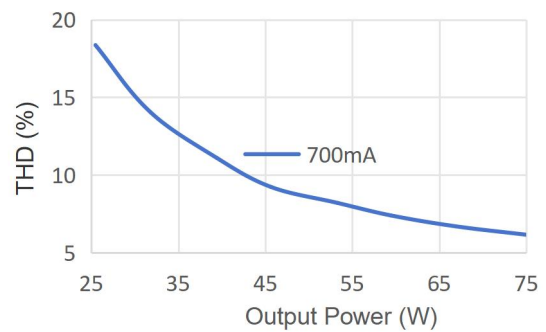
**Typical Efficiency vs Load**



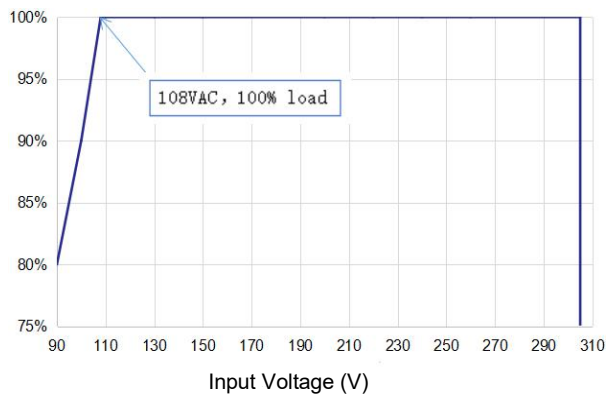
**Typical Power Factor vs Load**



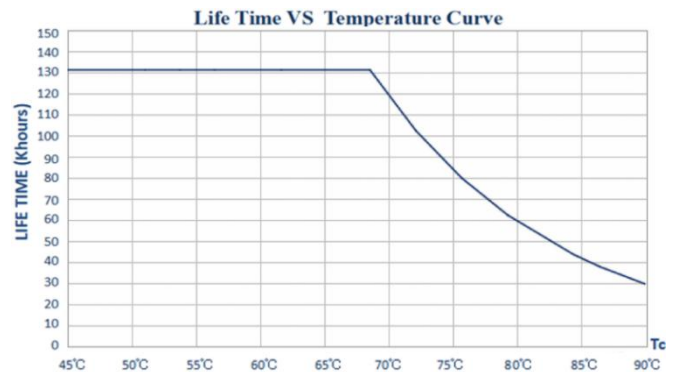
**Typical THD vs Load**



**Load Derating Curve**



**Lifespan**



Note: input: 120Vac/60Hz, output: 71.4Vdc/1050mA (only for reference)

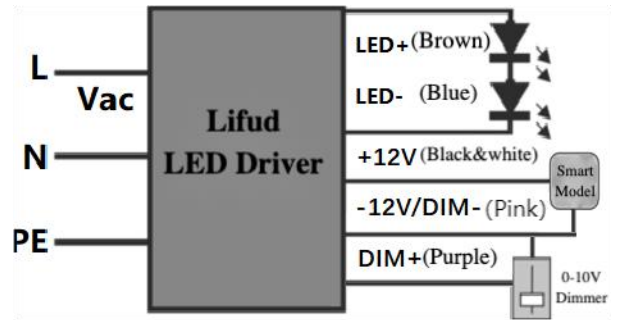
## Dimming operation instructions

Parameter	Min.	Typ.	Max.	Note
Output current	300mA	700mA	1050mA	Total output power $\leq 75W$

### 0-10V Dimming Operation

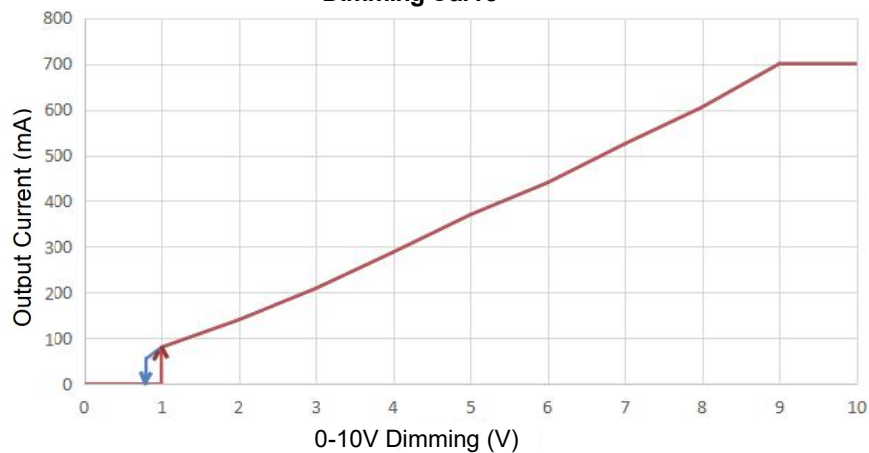
- Connect 0-10V signal to DIM terminal.
- In 0-10V dimming mode, when the input voltage is  $0.8V \pm 0.15$ , the light turns off. When it's  $1.0V \pm 0.15$ , the light turns on.
- Dimming depth: 10% (typical value)
- DIM+/- (without signal connected): 100% rated current output

### Wiring Diagram of 0-10V Dimming



This diagram is only for A version; C version has no 12V+.

### Dimming Curve

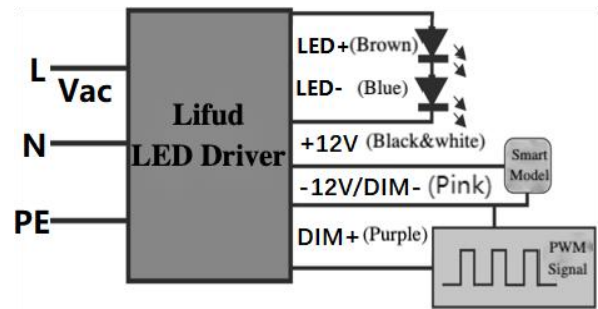


Input: 230Vac; output: 108Vdc/700mA (this data is measured by Lifud 0-10V dimmer and the chart is for reference only)

### PWM Dimming Operation

- Connect PWM signal to the DIM terminal.
- Dimming depth: 10% (typical value)
- Compatible signal range: 1000-2000(Hz), amplitude: 9-10(V)
- DIM+/- (without signal connected): 100% rated current

### Wiring Diagram of PWM Dimming



This diagram is only for A version; C version has no 12V+.

### Dimming Curve

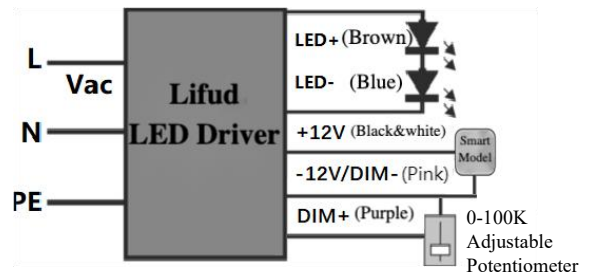


Input: 230Vac; output: 108Vdc/700mA (this data is measured by PWM signal generator Tektronix and the chart is for reference only)

### Rx Dimming Operation

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

### Wiring Diagram of Rx Dimming



This diagram is only for A version; C version has no 12V+.

### Dimming Curve

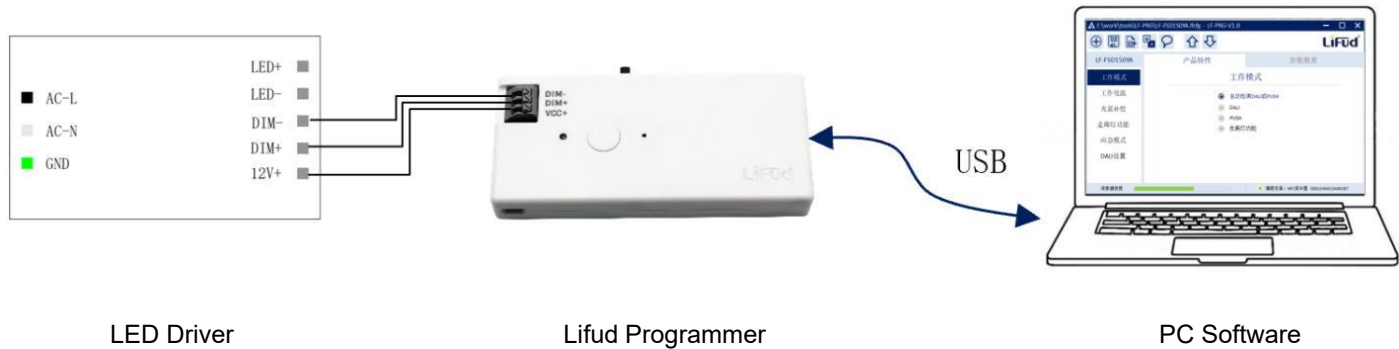


Input: 230Vac; output: 108Vdc/700mA (this data is measured by resistance dimmer and the chart is for reference only)

Programmer tools and software

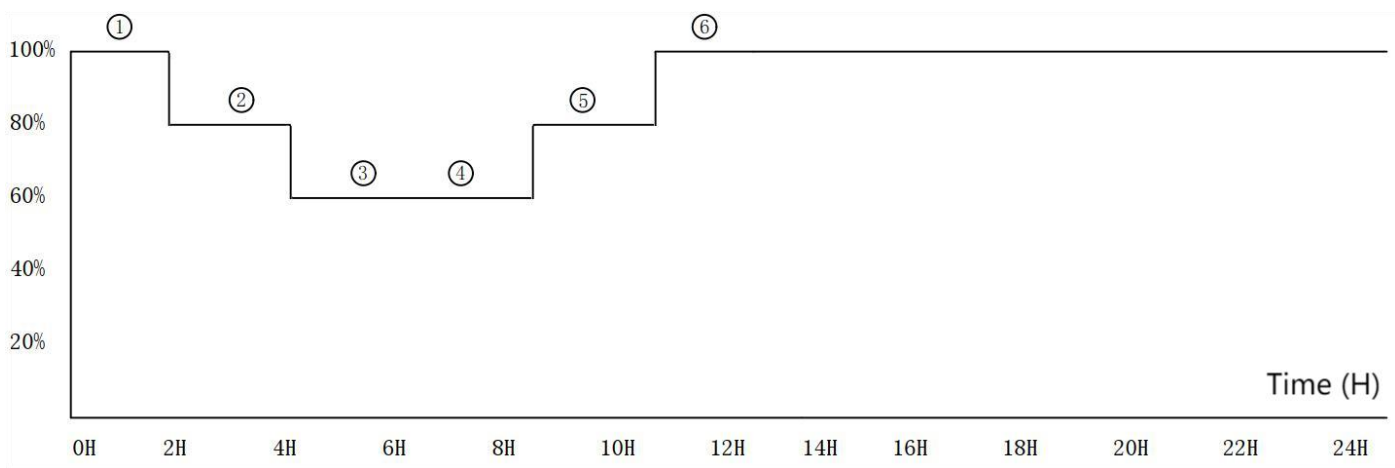
Product	Name	Brand	Model	Software
	Lifud programmer	LIFUD	LF-SCS080C	LF-PRG

Wiring diagram of parameter setting



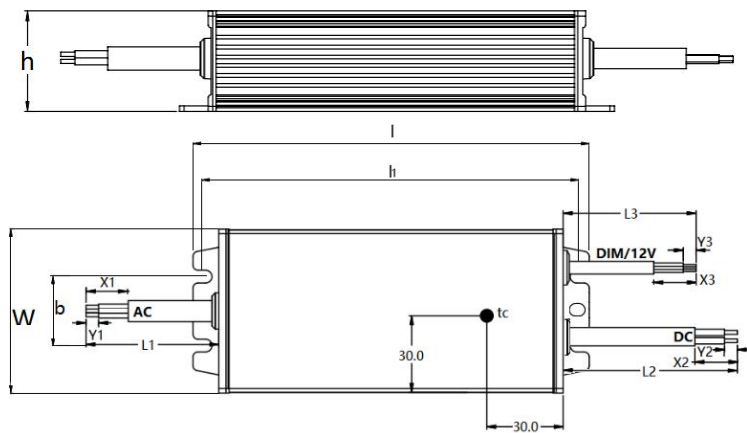
Time dimming function

Time dimming mode: there are 6 steps in total. You can set the brightness of each step and the operating time of the first to fifth steps.



Note: in the time dimming mode, after the power is turned on, it will work according to the set dimming curve.

Dimensions



Note: this diagram is a front view and Tc point is on the front side of the driver.

Mounting hole spacing, length (l1)	145.6mm
Mounting hole spacing, width (b)	27mm
Product weight	630g
Wire type, input side	3*1.0mm <sup>2</sup> $\phi$ 8.2 $\pm$ 1mm
Wire type, output side	2*1.0mm <sup>2</sup> $\phi$ 7.7 $\pm$ 1mm
Wire type, dimming and AUX side	3*22AWG $\phi$ 5.0 $\pm$ 0.2mm
Wire color, input side	AC-L Brown; AC-N Blue; PE Yellow&green
Wire color, output side	LED+ Brown; LED- Blue
Wire color, dimming and AUX side (only for A version, C version has no 12V wires)	DIM+ Purple; DIM- Pink; +12V Black&white
Wire length, input side (L1)	300 $\pm$ 10mm
Wire length, output side (L2)	230 $\pm$ 10mm
Wire length, dimming and AUX side (L3)	230 $\pm$ 10mm
Wire peeled length, input side (X1)	40 $\pm$ 4mm
Wire peeled length, output side (X2)	36 $\pm$ 4mm
Wire peeled length, dimming and AUX side (X3)	60 $\pm$ 5mm
Wire tinned length, input side (Y1)	10 $\pm$ 1.5mm
Wire tinned length, output side (Y2)	8 $\pm$ 1.5mm
Wire tinned length, dimming and AUX side (Y3)	10 $\pm$ 1.5mm
Length (l)	155.6 $\pm$ 0.5mm
Width (w)	64.2 $\pm$ 0.5mm
Height (h)	35.5 $\pm$ 0.5mm

### Colors & materials

Casing material	Metal
Casing color	Silver gray

### Temperature & operating conditions

Ambient temperature range	-40°C - +60°C
Maximum temperature at Tc test point	90°C
Temperature range at storage	-40°C - +80°C (6 months in Class I environment)
Humidity range at storage	10-90%RH (no condensation)
Humidity during operation	20-90%RH
Atmospheric pressure	86-106KPa
RoHS	RoHS 2.0 (EU) 2015/863

## Capabilities

Dimmable	0-10V/PWM/Rx dimmable
Open circuit protection	Open circuit voltage $\leq 150\text{Vdc}$
Overheating protection	When $T_c$ is $95^{\circ}\text{C} \pm 5^{\circ}\text{C}$ , it will reduce the current and auto-recover when the $T_c$ decreases to the normal temperature.
Overload protection	/
Short circuit protection	The LED driver will not be damaged even in the state of short circuit for a long time. (Auto-recovery)
Max. cable length to lamp/LED module	/
Suitable for fixtures with prot. class	I
Control interface	/
Number of channels	1 channel

## Programming

Programmer	LF-SCS080C
DALI control software	/
APP	LF-PRG

## Certificates & standards

Approval marks – approval	ENEC, CE, CB, RCM, FCC, UL
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
EMC	EN 55015, EN 61547, EN 61000-3-2,3 FCC: PART 15 CLASS B @120Vac FCC: PART 15 CLASS A @277Vac
Ring wave	5kV
Group pulse	5kV (Class B)
ESD	Air 8kV, touch 4kV
Type of protection	IP67

## Logistical data

Product	Packaging unit (Pieces/Unit)	Dimensions (L*W*H)	Volume	Gross weight
LF-A1-075U105A/C	16	446mm*332mm*167mm	24.73 dm <sup>3</sup>	11.58kg $\pm$ 5%



## Test equipment & condition

### 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.

If there are no special remarks, the above parameters are tested at the ambient temperature of 25°C, humidity of 50%, maximum output power and input voltage of 230Vac/50Hz.

## Additional information

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 number of LED drivers that can be connected to a circuit breaker and the inrush current are tested under the same conditions.
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. 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.

## Transportation & storage

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.

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.

## Disclaimer

Subject to change without notice. Errors and omissions excepted. Always make sure to use the most recent release.

Lifud Technology Co., Ltd. reserves the right to interpret any content of this specification.