LF-ADD020-0500-42

AC220-240V DALI Dimmable Constant Current LED Driver

Product family features

— DALI&PUSH dimmable

— Dimming range: 1-100%

— High efficiency up to 86%

— THD<8%

— Suitable for Class II light fixtures

— 5 years guarantee

Product family benefits

— Advanced functions: EL, CorridorDIM, CLO

— 4-shift current adjustable via 2 bit DIP switch

— Parameters configurable via programmer

— Surge level: PUSH: 1kV, L-N: 1kV

Typical applications

— For downlight

— For office, commercial and home lighting

Product parameters

— Output current 350-500mA

— Output power 14.7-21W

— Input voltage 198-264Vac

— Output voltage 9-42Vdc

— Efficiency 86%

Electrical data

Input data

Rated AC input voltage	220 ... 240V
AC voltage range	198 ... 264V
Mains frequency	0/50/60Hz
Rated DC input voltage	220 ... 240V
DC voltage range	176 ... 280V
Power factor	≥0.95
Efficiency	≥86%
THD	<8%
Input current	0.15A Max
Inrush current	15A[1)]
Loading number on circuit breaker 10 A (B)	40
Loading number on circuit breaker 10 A (C)	62
Loading number on circuit breaker 16 A (B)	64
Loading number on circuit breaker 16 A (C)	99
Protective conductor current	≤0.7mA
Stand-by power consumption	≤0.5W

Output data

Nominal output voltage	9...42V
Nominal output current	350...500mA
Default output current	500mA
Current setting	DIP switch
Maximum output power	21W
Nominal output power	14.7 ... 21W
Output ripple current (100 Hz)	±3.3 %
Flicker	According to IEEE Std 1789-2015
CIE SVM	≤0.4
IEC-Pst	≤1
Output current tolerance	±5%
Temperature tolerance	±10%
Start-up time	<1.5S

Safety

Withstanding voltage	I/P-O/P: 3.75kV&5mA&60S; I/P-DA1/DA2, O/P-DA1/DA2: 1.5kV&5mA&60S
Surge capability (L-N)	1kV
PUSH[2)]	1kV
Insulation resistance	I/P-O/P, I/P-DA1/DA2, O/P-DA1/DA2: ＞100MΩ@500VDC
Guarantee	5 years [3)]

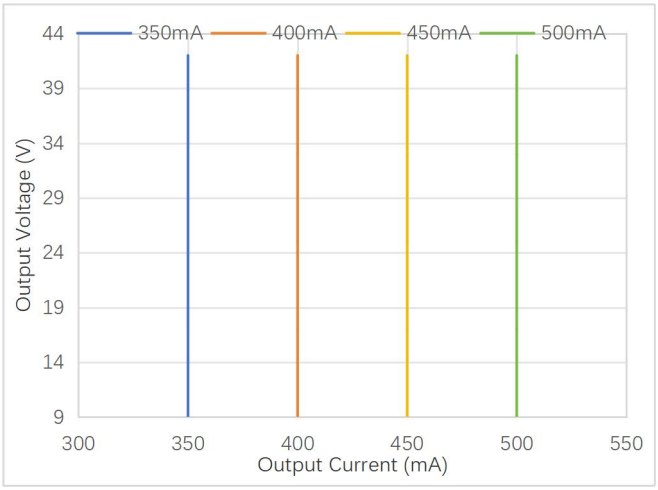
1) t =180μs

2) The surge test wiring at the PUSH terminal is connected in parallel with L-N

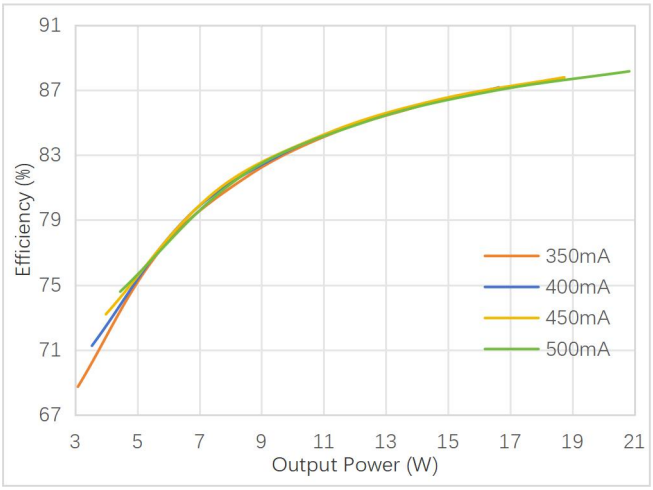
3) 5 years @Tc≤79℃

Characteristic diagrams

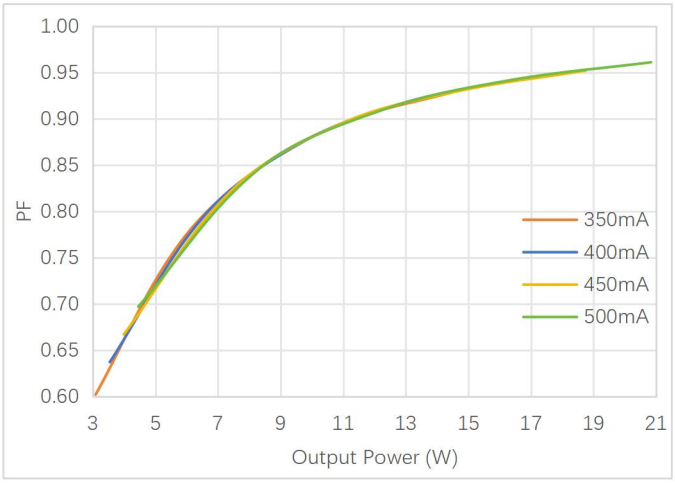
Operating Window



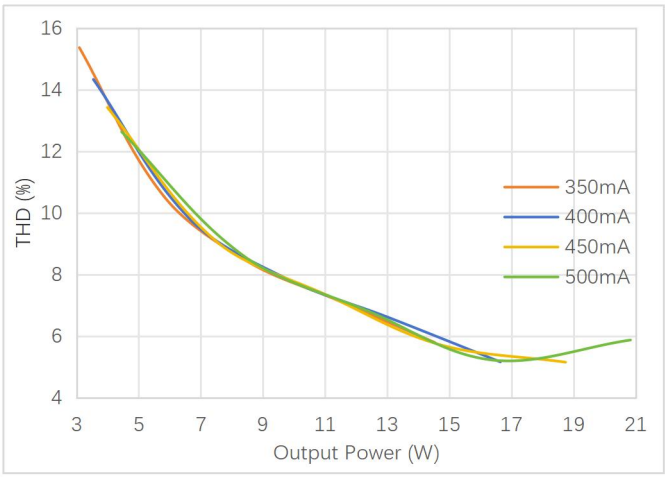
Typical Efficiency vs Load



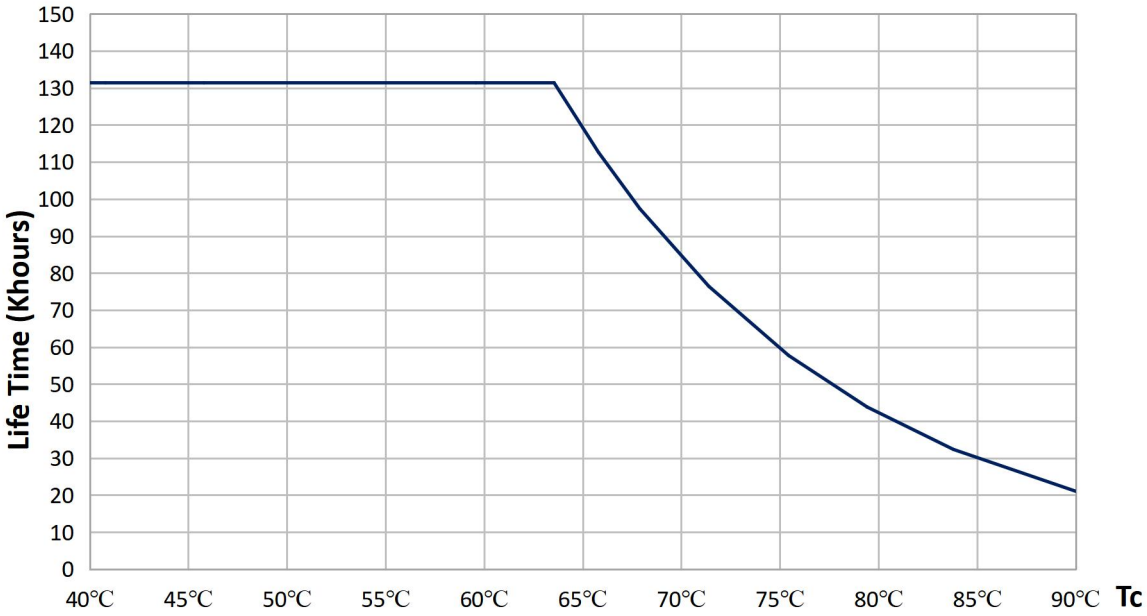
Typical Power Factor vs Load



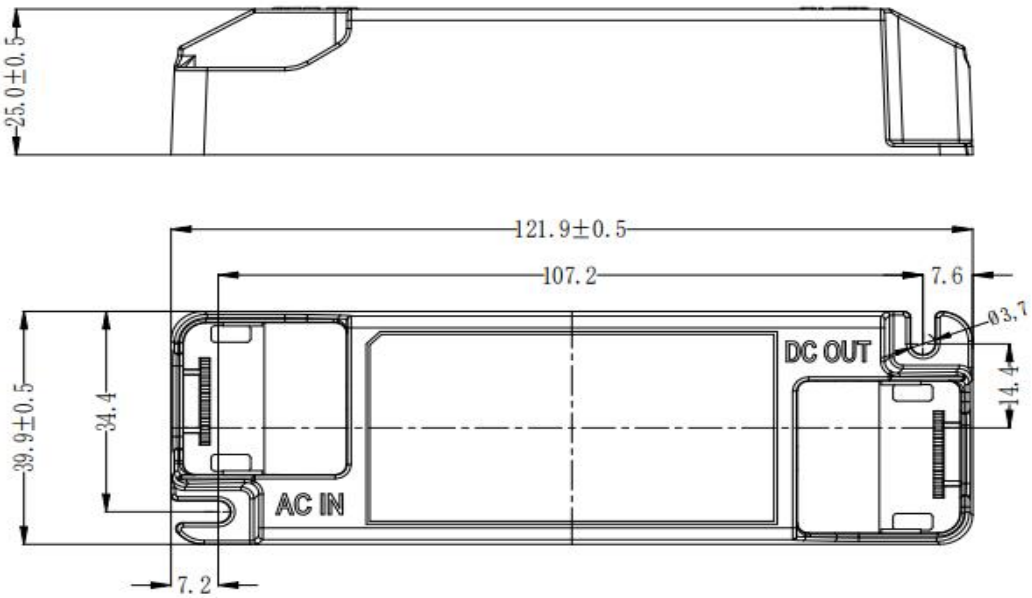
Typical THD vs Load



Lifespan



Dimensions



Mounting hole spacing, length	107.2mm
Locating hole diameter	3.7mm
Product weight	78g
Cable cross-section, input side	0.75 ... 1.5 mm²
Cable cross-section, output side	0.5 ... 1.0 mm²
Wire diameter, input side	3-6mm
Wire diameter, output side	3-6mm
Wire preparation length, input side	7 ... 8mm
Wire preparation length, output side	7 ... 8mm
Length	121.9mm
Width	39.9mm
Height	25.0mm

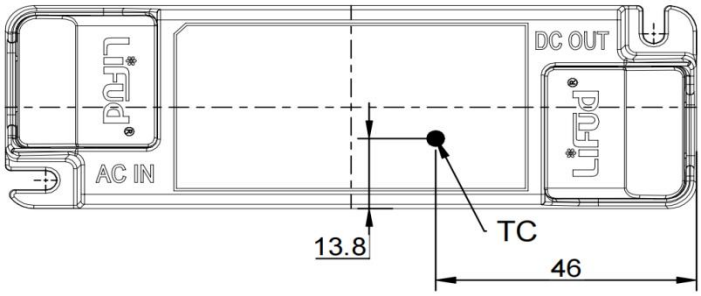
Colors & materials

Casing material	PC
Casing color	White

Temperature & operating conditions

Ambient temperature range	-30℃ - +45℃
Maximum temperature at Tc test point	85℃
Temperature range at storage	-30℃ - +80℃ (6 months in Class I environment)
Humidity range at storage	20-75%RH (no condensation)
Humidity during operation	20-95%RH (no condensation)
Atmospheric pressure	86-106KPa
RoHS	RoHS 2.0 (EU) 2015/863

Tc test point



Tc point is at the top of LED driver

Product terminal

Input		Output	
DA1/PUSH	DALI/PUSH dimming input	**LED+**	Positive terminal output of LED driver
DA2/PUSH	DALI/PUSH dimming input	**LED-**	Negative terminal output of LED driver
AC-L	Input terminal of AC live wire		
AC-N	Input terminal of AC neutral wire		

DIP switch definition

Vo DC	I rated（CC）	1	2
9-42V	500mA	OFF	OFF
9-42V	450mA	OFF	ON
9-42V	400mA	ON	OFF
9-42V	350mA	ON	ON

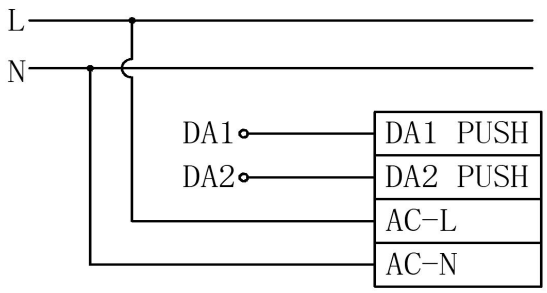
Remark: when adjusting the output current via the DIP switch, please disconnect input AC first so as to use the DIP switch without the input AC connected.

Capabilities

Dimmable	DALI/PUSH dimmable
Dimming range	1 ... 100%
Overload protection	Yes
Short circuit protection	Free of damage (Self-recovery)
No-load protection	<59V
Suitable for fixtures with prot. class	II
Programming interface	DALI
Control interface	DALI
Number of channels	1 channel
CorridorDIM	Yes
EL	Yes
CLO	Yes
DALI Part 101 102 207	Yes

Dimming function instructions

- **DALI dimming function**



Wiring diagram of DALI dimming

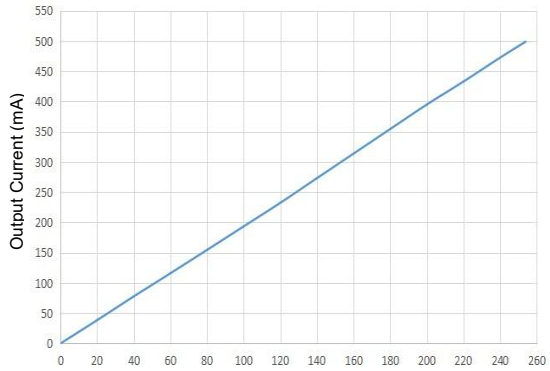
① Default setting brightness is 100%.

② Connect DALI signal to DA1 PUSH and DA2 PUSH.

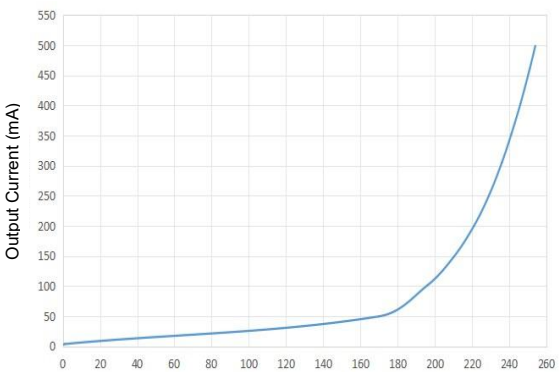
③ DALI protocol includes max.16 scene groups.

④ Maximum number of LED drivers connected in parallel in DALI dimming mode: 64 pcs.

⑤ Minimum dimming depth of DALI dimming: 1%. (Iout&Vout max)



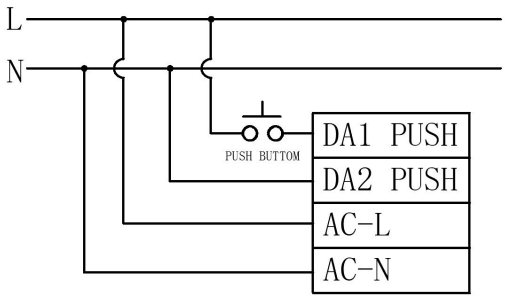
Linear dimming



Logarithmic dimming

Note: DALI and PUSH dimming function can not be used at the same time, otherwise the DALI dimmer will be damaged.

• PUSH dimming function



Wiring diagram of PUSH dimming

Switch from DALI mode to PUSH mode: short press PUSH switch to enable PUSH dimming function.

① Connect PUSH switch between AC-L and DA1 PUSH in series and connect DA2 PUSH to AC-N.

② Make sure that AC-L and AC-N are NOT directly connected to DA1 PUSH and DA2 PUSH terminals.

③ Make sure that PUSH switch is off before the AC is powered on; operate PUSH after the AC is powered on.

④ Make sure the PUSH switch is off before disconnecting the AC.

⑤ If you have any questions about the wiring and operation, please confirm with Lifud FAE.

⑥ Wrong wiring or operation may cause damage to the LED driver.

Operation	Duration	Function
Instant Push	0.1-0.5S	LED light on/off
Long Push	0.6-9S	LED light dims up/down
Reset Push	＞9S	Reset the brightness of luminaire to 50%

① The PUSH operation won't cause any variations on LED driver if it's less than 0.1S.

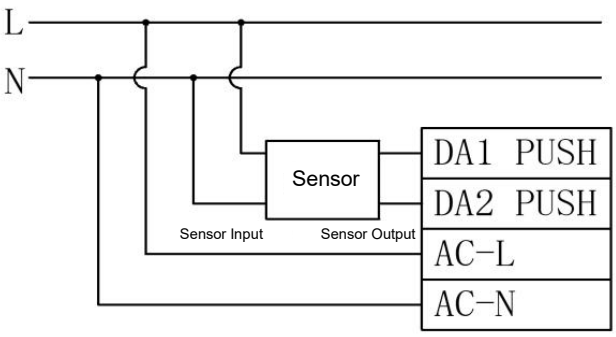
② Minimum dimming depth of PUSH dimming: 1%. (Iout&Vout max)

③ 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.

④ The present dimming direction of PUSH dimming is opposite to the former one.

⑤ In automatic mode, long press for more than 3 minutes to enter the corridor dimming function.

• Corridor dimming function



Wiring diagram of corridor dimming

Operations for entering corridor lighting mode

Approach 1: use Lifud programmer to enable the driver's corridor lighting mode and set parameters.

Approach 2: keep pressing PUSH for 3+ mins so as to switch to the corridor lighting mode.

Approach 3: keep the effective sensing signal for 3+ mins (set the sensor's hold time to 3+ mins) to enable the corridor lighting mode.

Remarks:

1. In the automatic detection mode, the driver can be switched from PUSH mode to corridor lighting mode by approach 2 and 3, and the luminaire will dim to 50% brightness; long press for 3 mins and then it dims down first and then dims up, which means the driver has entered the corridor lighting mode.

2. After activating the corridor dimming mode, PUSH DIM is turned off.

3. In the case of AC input and any level of brightness in the corridor lighting mode, switching to DC and then returning to AC will restart the corridor lighting mode.

Operations for exiting corridor lighting mode

Approach 1: use Lifud programmer to choose other modes and exit corridor lighting mode.

Approach 2: connect the driver to the DALI master to send DALI command, and the driver will return to the DALI dimming mode.

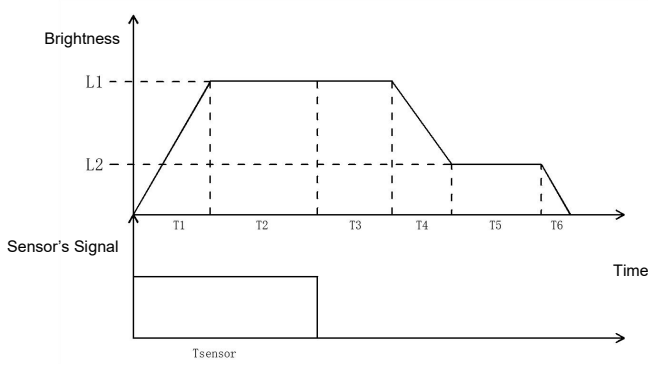
Approach 3: connect the driver to the PUSH switch and continuously press the switch 10 times within 10 secs, and the driver will return to the PUSH dimming mode.

Remark:

1. The 3-sec or above single press or release will cause the press number to be counted as 0.

2. The approach 2 and 3 CANNOT be used if the corridor lighting mode of driver is set via Lifud programmer.

Working process of corridor dimming mode



Symbol	Name	Default value	Available setting scope
T1	Fade-in time of sensing	1s	0-100s
T2	Holding time of sensing	Depends on sensor	Depends on sensor
T3	Waiting time of sensing	180s	0-59999s, 60000s (infinite)
T4	Fade-out time of sensing	5s	0-100s
T5	Unattended time	60000s (infinite)	0-59999s, 60000s (infinite)
T6	Fade-out off time	0s	0-100s
L1	Sensing brightness	100%	0-100%

L2	Unattended brightness	10%	0-100%

Emergency function instructions

The default output current is 15% Io max in the case of DC emergency input.

Emergency input voltage: 176-280Vdc

Note:

1. The emergency output current can be set via the Lifud programmer and programming software.

2. It can be set from 0 to 100%.

3. When the emergency mode is off with DC power supply input, the LED driver remains in the previous working state and the dimming function is normal.

4. In the case of mains input, the brightness is random when using PUSH dimming. When the driver enters the emergency lighting mode and then reconnects AC, the light brightness will remain the one set via PUSH switch when mains is connected.

5. In the case of mains input, the brightness is random when using DALI dimming. When the driver enters the emergency lighting mode and then reconnects AC, the light brightness will return to the brightness when DALI is powered on.

Programmer tool and software

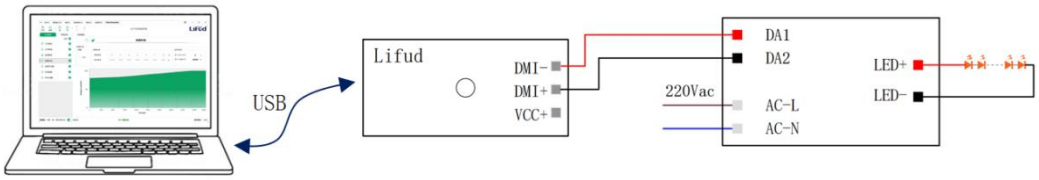
Product	Name	Brand	Model	Software
	Lifud programmer	LIFUD	LF-SCS080C	Lifud SmartSet

Read/write and parameter configuration

Programming project	Default settings	Parameters settings	Read/Write
Production information	-	No	Read
Output current	/	/	/
Operating mode	Automatic detection (DALI/PUSH)	Yes	Read/Write
EL	15% (default)	Yes	Read/Write
CorridorDIM	Inactivated	Yes	Read/Write
CLO	Inactivated	Yes	Read/Write

Configuration function instructions

Lifud programmer



PC Software　　Lifud Programmer　　LED Driver

Certificates & standards

Approval marks	ENEC, CE, CB, RCM, CCC, EL, DALI-2
Standards	GB 19510.1-2009; GB 19510.14-2009; GB 7000.1-2015; GB 17625.1-2022; GB/T 17743-2021; EN 61347-2-13; EN 61347-1; EN 62384; EN 62493; EN 55015; EN 61547; EN 61000-3-2; EN 61000-3-3; IEC61347-1; IEC61347-2-13; EN IEC 61347-2-13 Annex J; AS 61347.2.13 & AS/NZS 61347.1
Type of protection	IP20

Logistical data

Product	Packaging unit (Pieces/Unit)	Dimensions (L*W*H)	Volume	Gross weight
LF-ADD020-0500-42	98	385mm*285mm*210 mm	23.04 dm³	8.70kg±5%

Test equipment & condition

Test equipment	AC power source: CHROMA6530, digital power meter: CHROMA66202, 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℃, humidity of 50%, maximum output load 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. DC input is only for emergency.

6. The final interpretation of the above parameters belongs to Lifud.

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.