## Features

- Supports 6-step time dimming
- Output current and parameters adjustable via NFC
- Supports CLO function
- Driver temperature guard via internal OTP protection
- All-round protection: input overvoltage, output open circuit, overload, over-temperature and short circuit protection
- Surge protection: L-N: 6kV; L/N-PE: 10kV
- According to Zhaga Book 13, 24, 25
- IP20; suitable for Class I/II light fixtures (IP>54)

## Applications

· Street lighting  · area lighting  · industry lighting

## Descriptions

LF-ACD040D-1050-57 is a 40W (max.) NFC programmable constant current LED driver. Its rated input voltage ranges from 220 to 240Vac. Its output current is adjustable from 200 to 1050mA. It has protective features of input overvoltage, output open circuit, overload, short circuit protection and over-temperature protection.

## Product Model

LF - ACD  040D  -1050  - 57
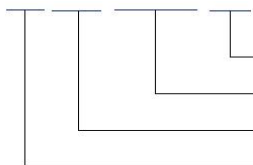
- 57: max. output voltage: 57Vdc
- 1050: max. output current: 1050mA
- 040: max. output power: 40W; D: ON/OFF NFC series
- ACD: LED driver series

### ■ Electrical Characteristics

| Model | LF-ACD040D-1050-57 | | | |
|---|---|---|---|---|
| **Output** | Output Voltage | 17-57V | | |
| | Output Current | 200-1050mA① (default: 700mA②) | | |
| | Ripple Current (≤100Hz) | ±3.3% | | |
| | Flicker Index | IEC-Pst≤1, CIE SVM≤0.4, according to IEEE Std 1789-2015 | | |
| | Current Tolerance | ±5% | | |
| | Temperature Drift | ±10% | | |
| | Start-up time | <1s | | |
| **Input** | Rated Input Voltage | 220-240Vac | | |
| | Input Voltage Range | 180-264Vac | | |
| | DC Input Voltage | 180-264Vdc③ | | |
| | Input Frequency | 0/50/60Hz | | |
| | Input Current | 0.3A Max. @AC input  0.053-0.254A@DC input | | |
| | PF | ≥0.95 | | |
| | THD | <10% | | |
| | Efficiency | ≥89% | | |
| | Inrush Current | <22A&200uS | | |
| | Loading Quantities of Circuit Breaker | Model | B10 | C10 | B16 | C16 |
| | | Quantity (pcs) | 22 | 22 | 35 | 35 |
| | Leakage Current | ≤3.5mA | | |
| **Environment Descriptions** | Operating Temperature | -40℃~+55℃ | | |
| | Operating Humidity | 20-90%RH (no condensation) | | |
| | Storage Temperature/ Humidity | -40℃~+80℃ (6 months in Class I environment); 10-90%RH (no condensation) | | |
| | Atmospheric Pressure | 86-106kPa | | |
| **Surge** | L-N | 6kV | | |
| | L/N-PE | 10kV | | |

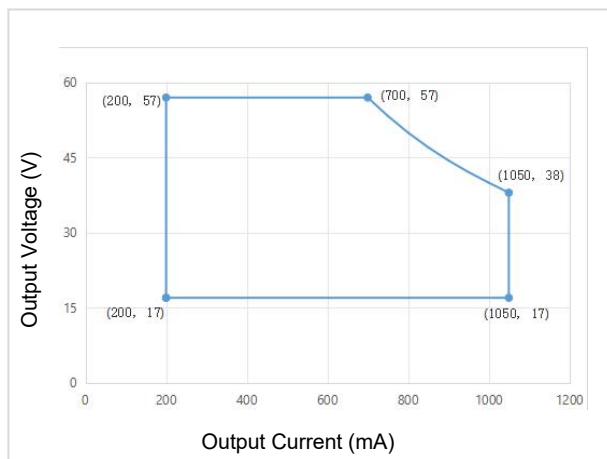## ■ Electrical Characteristics

| | | |
|---|---|---|
| **Safety and EMC** | Certifications | CB, CE, ENEC, RCM, SAA, UKCA |
| | Withstanding Voltage | I/P-O/P: 3.75kV&5mA&60S; I/P-PE: 1.5kV&5mA&60S; O/P-PE: 1.5kV&5mA&60S; |
| | Insulation Resistance | I/P-O/P: ＞100MΩ@500VDC; I/P-PE: ＞100MΩ@500VDC; O/P-PE: ＞100MΩ@500VDC; |
| | Safety Standards | CB: IEC 61347-1:2015, IEC61347-2-3:2014, IEC 61347-2-13:2014/AMD1:2016ERP:EU 2019/2020@2019.12.05<br>CE-LVD: EN 61347-2-13:2014/A1:2017, EN 61347-1:2015, EN 62493:2015<br>ENEC: EN61347-1:2015, EN 61347-2-13:2014/A1:2017, EN 62384:2020<br>RCM: AS 61347.2-13:2018<br>SAA: AS61347.2-13:2018<br>UKCA-LVD: EN 61347-1:2015/A1:2021, EN 61347-2-13:2014/A1:2017 |
| | EMI | CE-EMC/RCM: EN55015, EN61000-3-2, EN61000-3-3<br>EN IEC 61000-3-2:2019/A1:2021, EN 61000-3-3:2013/A2:2021<br>UKCA-EMC: EN IEC 55015:2019/A11:2020, EN 61547:2009 |
| | EMS | CE-EMC/RCM: EN61000-4-2,3,4,5,6,11 |
| **Other Parameters** | IP Rating | IP20 |
| | RoHS | RoHS 2.0 (EU) 2015/863 |
| | Tc Max | 90℃ |
| | Warranty Condition | 8 years (Tc≤81℃) |
| | Noise Level | ≤25dB (The noise collector should be placed at 10cm away from the LED driver during the test in a quiet room) |
| **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: EEC SE7440, flicker tester (flicker-free coefficient test): Everfine LFA-3000, etc. |
| **Testing Remark** | | If there are no special remarks, the above parameters are tested at the ambient temperature of 25℃, humidity of 50%, maximum output power and input voltage of 230Vac/50Hz. |

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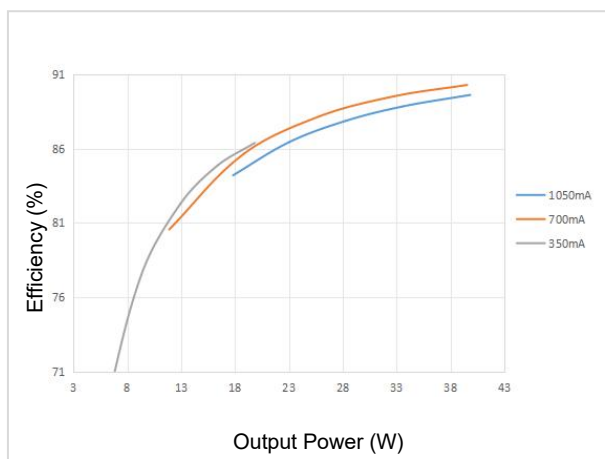
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■ **Electrical Characteristics**

| 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.<br>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.<br>3. 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.<br>4. The total output power of the driver can not exceed the rated maximum power during use, otherwise it can not be guaranteed.<br>5. The test conditions of the circuit breaker configuration quantity are the same as those of the inrush current.<br>6. Lifud reserves the right to interpret any of the above parameters.<br>Remark:<br>① When the output current is 1050mA, the load voltage of LED driver ranges from 17 to 38Vdc; when the load voltage >38Vdc, the LED driver outputs with the maximum power of 40W. Please see the chart.<br>② The default current of LED driver is 700mA and its output current can be set by FEIG NFC reader and Lifud programmer.<br>③ DC input is only for emergency. |
|---|---|

■ **Product Characteristic Curves**

Working Window Curve



Efficiency Curve



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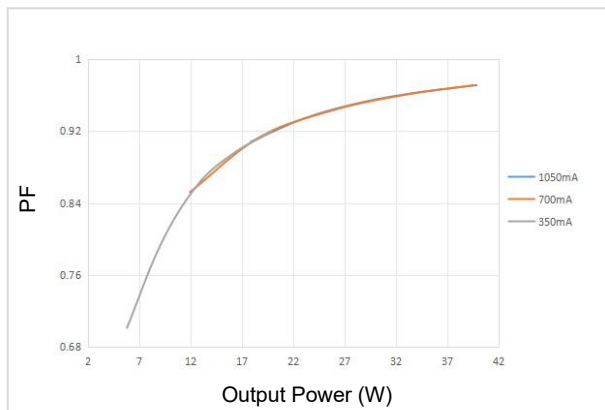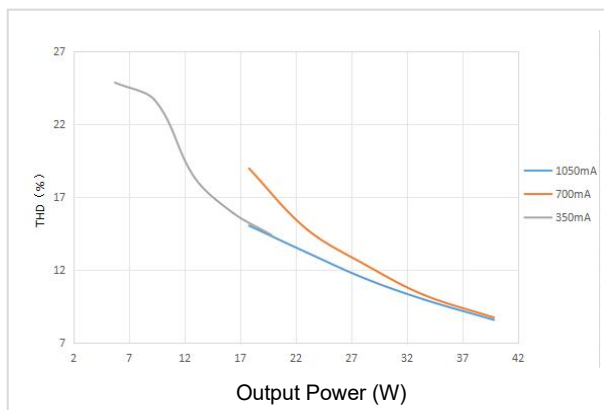### ■ Product Characteristic Curves
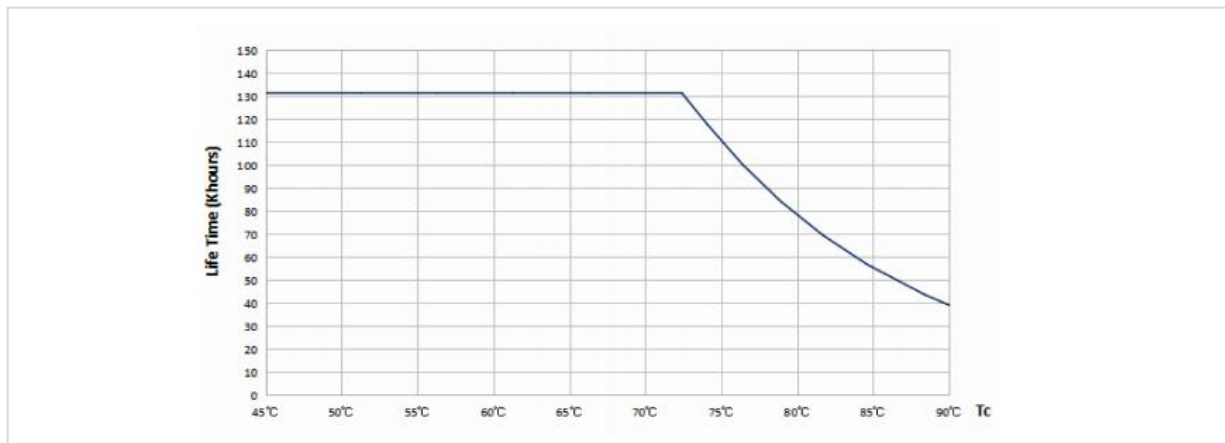
PF Curve
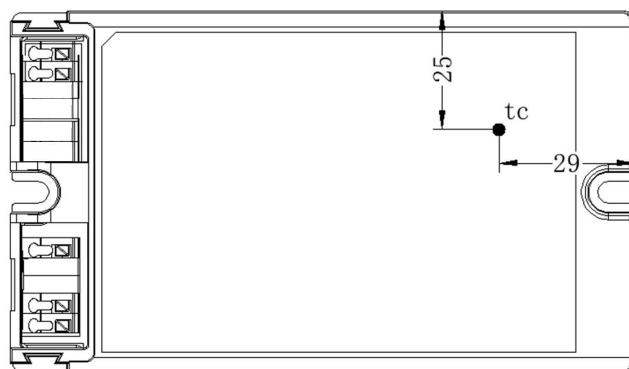


THD Curve



Lifetime Curve



Tc Point (unit: mm)



The Tc point is at the bottom of the LED driver

■ **Protective Characteristics**

| Protective Type | | | | Min. | Typ. | Max. | Introduction |
|---|---|---|---|---|---|---|---|
| Internal over-temperature protection | Mode 1 | If the temperature is too high, the current will drop first and then the light will be off. | T1 (Start to decrease the current) | 82℃ | 85℃ | 88℃ | When the internal temperature rises to T1, the internal thermal protection will be triggered and the output current will gradually decrease. |
| | | | T2 (Stop decreasing the current) | 85℃ | 88℃ | 91℃ | When the internal temperature rises to T2, the output current will decrease to the programmed protection current value (default is 50%Io) |
| | | | T3 (Turn off the light) | 88℃ | 91℃ | 94℃ | When the internal temperature rises above T3, the light will be off, and when the temperature drops below T1, the light can be automatically turned on. |
| | Mode 2 | If the temperature is too high, the light will be off. | T3 (Turn off the light) | 88℃ | 91℃ | 94℃ | When the internal temperature rises above T3, the light will be off, and the AC needs to be restarted to restore the light. |
| Open Circuit | | | | <59V (AC needs to be powered off and restarted after 45S of open circuit) | | | |
| Short Circuit | | | | Hiccup mode (auto-recovery) | | | |

| Input overvoltage protection | Protective voltage | 310Vac | 320Vac | 330Vac | When the input voltage is higher than the protective voltage, the light will be off. |
|---|---|---|---|---|---|
| | Restore voltage | 261Vac | 270Vac | 278Vac | When the input voltage is lower than the restore voltage, the light can be automatically turned on. |

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■ **Protective Characteristics Schematic**

Schematic diagram of input overvoltage protection
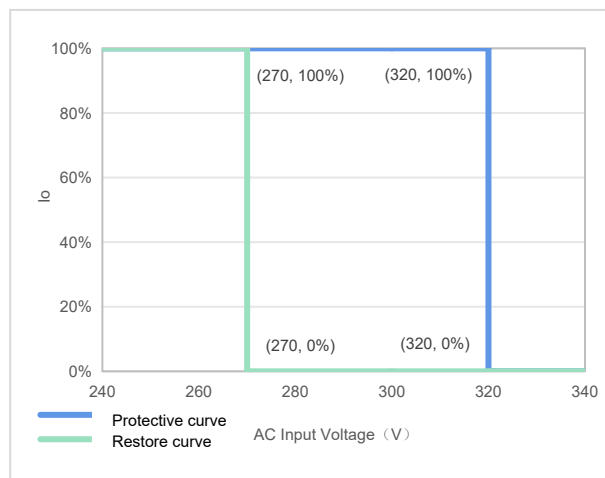


Remark: It is not allowed to operate outside the input voltage range for a long time.

■ **Time Dimming Introduction**

Time dimming control includes 3 kinds of modes: Traditional Timer, Self Adapting-Midnight and Self Adapting Percentage. When the time dimming control starts, it will enter Traditional Timer mode by default. There are 6 segments in each mode, and you can set the brightness of each segment, the running time of the first to fifth segments, and the fade time for switching between two segments.
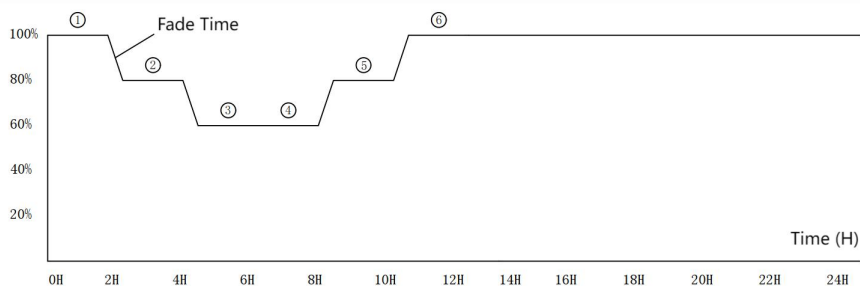


**Traditional Timer**: Follows the programmed timing curve after power on.

**Self Adapting-Midnight**: Automatically adjusts the dimming curve based on the on-time of each of the past 3 days (if difference <15 minutes), assuming that the center point of the dimming curve is local midnight time.

**Self Adapting-Percentage**: Automatically adjusts the on-time of each step by a constant percentage of the initialization time and operational use time according to the actual on-time of the past 3 days (if difference <15 mins).

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■ **Programmer Tools and Software**

| Product | Name | Brand | Model | Softwares |
|---|---|---|---|---|
| | NFC desktop programmer | FEIG | ID CPR30+ | Lifud SmartSet |
| | NFC handheld programmer | FEIG | ID ISC.PRH101-USB | Lifud SmartSet |
| | NFC batch programmer | FEIG | ID ISC.LRM1002-E ID ISC.ANT300/300-A | Lifud SmartSet |
| | Mobile NFC APP | LIFUD | / | Lifud NFC |

■ **Programmer Setting Instructions**

**Read/write and parameter configuration**

| Programming project | Default settings | Parameters settings | Read/Write |
|---|---|---|---|
| Product information | - | No | Read |
| Output current | 700mA (default) | Yes | Read/Write |
| CLO | Inactivated | Yes | Read/Write |
| Time dimming | Inactivated | Yes | Read/Write |
| Over-Temperature Protection | Activated | Yes | Read/Write |

■ **Programmer Setting Methods**

① **NFC**



PC Software          NFC Programmer          Driver

Note: When using the NFC reader, the driver is not allowed to operate while powered on. The driver must be powered off and completely discharged before it can read and write normally.

## ② Mobile NFC APP

QR Code for NFC APP Download

Note: When using the NFC app, the driver is not allowed to operate while powered on. The driver must be powered off and completely discharged before it can read and write normally.
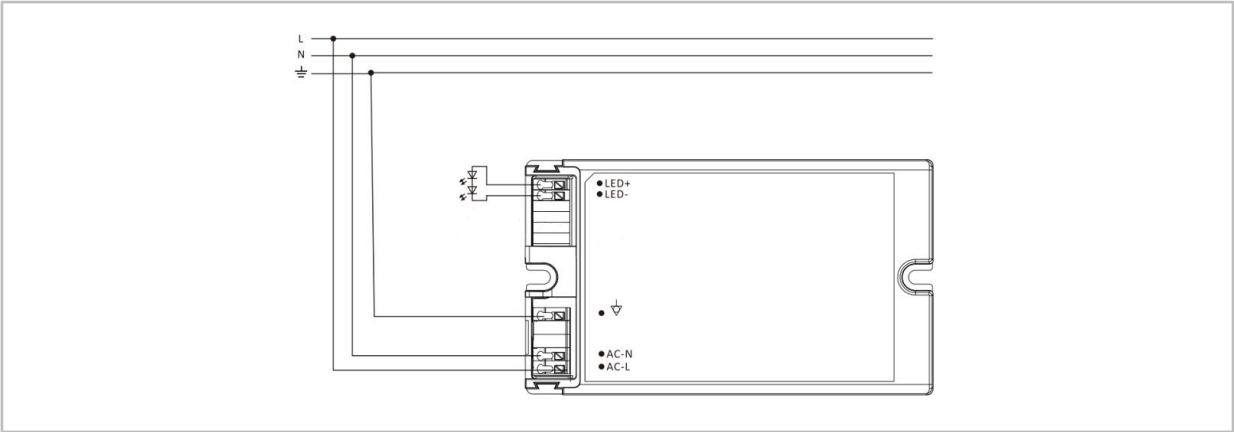
## ■ Product Terminal Definition

Product Terminals

| Input | | Output | |
|---|---|---|---|
| ⏚ | Earth wire | LED+ | Positive terminal output of LED driver |
| NC | / | LED- | Negative terminal output of LED driver |
| NC | / | NC | / |
| AC-N | AC neutral wire input | NC | / |
| AC-L | AC live wire input | NC | / |
| / | / | NC | / |

## ■ Driver Control Instructions

### Wiring Diagram

### ■ Structure & Dimensions (unit: mm)

| Model | Overall Appearance (L*W*H) | Distance Between 2 Locating Holes (L) | Diameter of Locating Hole (D) |
|---|---|---|---|
| LF-ACD040D-1050-57 | 132.6*76.5*33 mm (±0.5mm) | 122.5 mm (±0.5mm) | 4.5 mm |
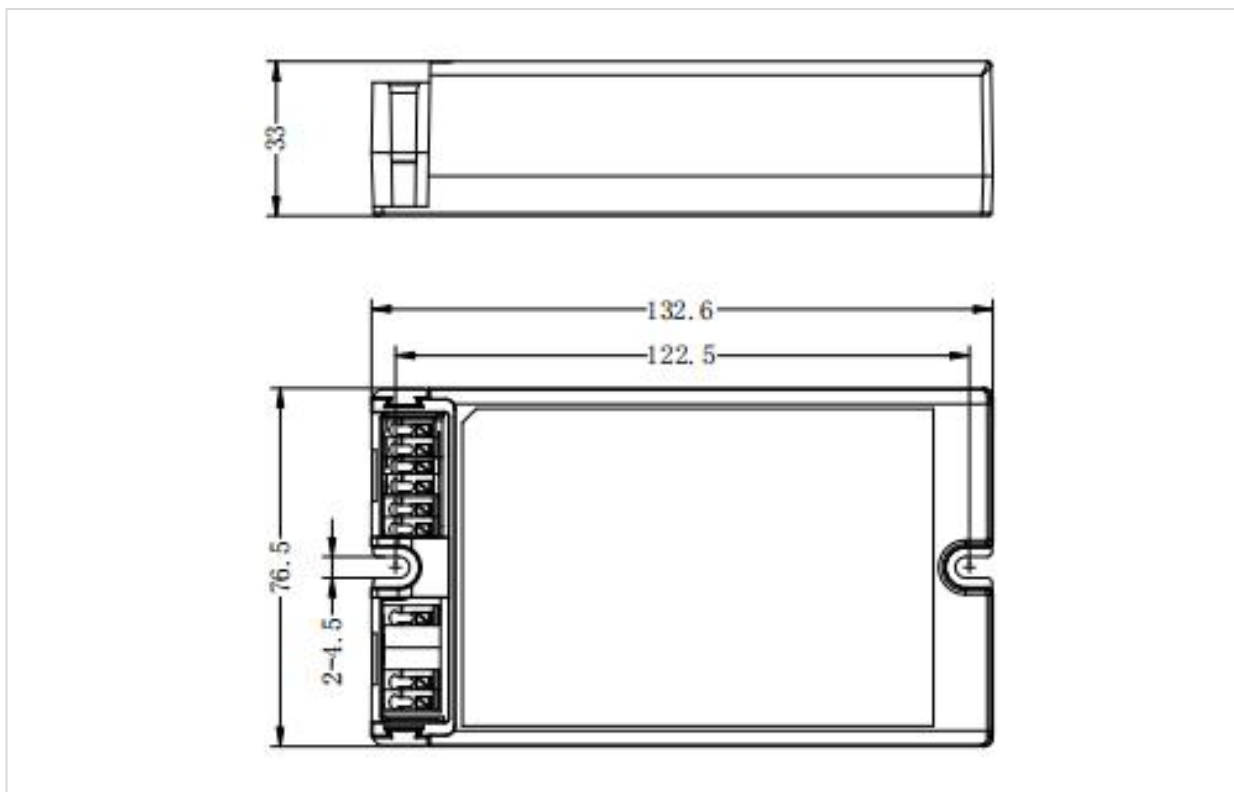


### ■ Packaging Specifications

| Model | LF-ACD040D-1050-57 |
|---|---|
| Carton Size | 280*217*95mm (L*W*H) |
| Quantity | 12 pcs/layer; 1 layers/ctn; 12 pcs/ctn |
| Weight | 0.20±5% kg /pc; 2.808±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 Technology Co., Ltd. reserves the right to interpret any contents of this specification.