# Specification

**Customer's Name: _____**

**Product Material No. : _____**

**Model No. : LF-GSD060YC**

**Version: V1.4**

## Customer Approval

| Examined by | Reviewed by | Approved by |
|---|---|---|
| | | |

## LIFUD Approval

| Drafted by | Reviewed by | Approved by |
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| | | |

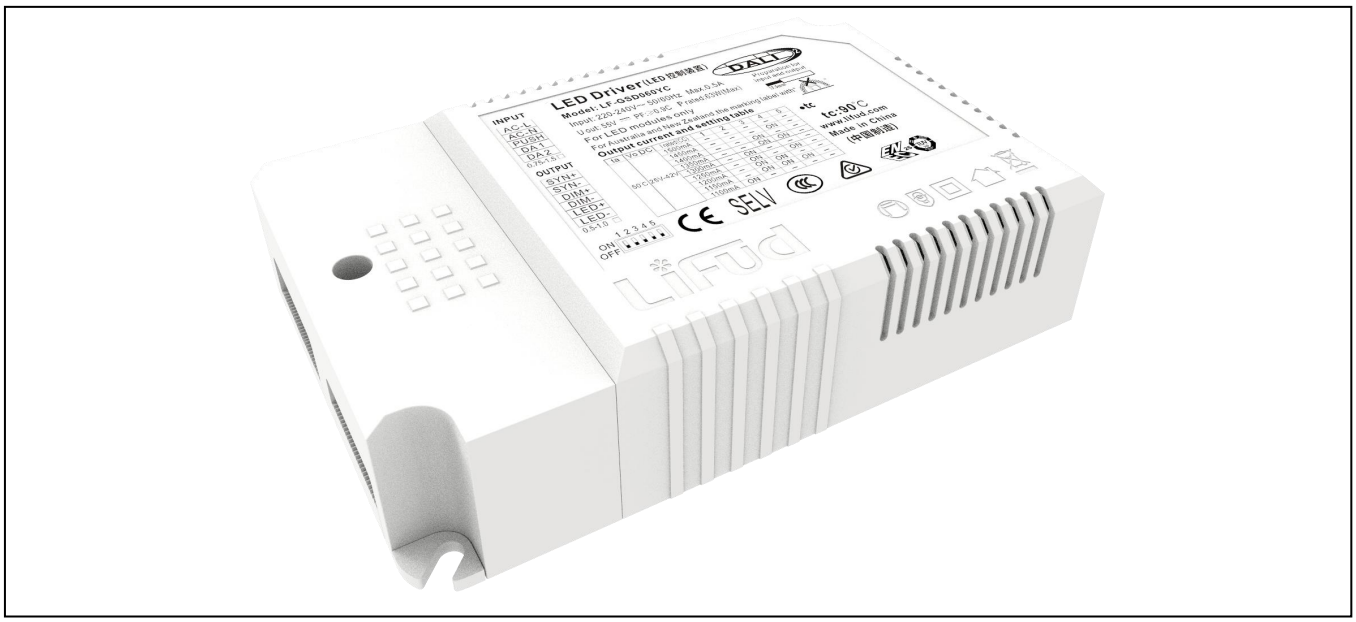
## Full Model Numbers Required by the Customer

| Full model No. | | Full model No. | |
|---|---|---|---|
| Full model No. | | Full model No. | |

## E.C. List

| Version | Description of Change | R&D | Date |
|---|---|---|---|
| 1.0 | Formal release | Zhu Nengwu | 10 MAY 2019 |
| 1.1 | Revised | Yang Ru | 13 AUG 2019 |
| 1.2 | Upgraded parameters | Yang Ru | 4 SEP 2019 |
| 1.3 | Revised the wiring description of the push dimming | Yang Ru | 19 DEC 2019 |
| 1.4 | Added the introduction of synchronous dimming | Yang Ru | 19 MAR 2020 |
| | | | |

**Lifud Technology Co., Ltd.**
Building B, Kutto Industrial Park, No.26 Xinhe Road, Xinqiao Street, Bao'an District, Shenzhen, China 518104 www.lifud.com




## Product Description

LF-GSD060YC series is a 60W constant current LED driver. It conforms to DALI 2.0 compatibility certification including IEC 62386-101, 102, 207. Input voltage limit is 198-264VAC. Output current can be selected from 1100mA to 1500mA via a DIP switch, 50mA every step. Owing to the unique circuit structure, the efficiency of this series reaches up to 88%. Equipped with 5 types of dimming functions (including DALI, PUSH, 0-10V, PWM & Rx dimming functions), this product can be a solution for various LED lighting system designs.

## Product Feature

- Constant current output. The current value can be selected via a DIP switch, 50mA every step.
- Plastic casing. Suitable for the Class I and Class II light fixtures
- Built-in active power factor correction function
- Stand-by power consumption less than 0.5W
- DALI dimming (Logarithmic or linear dimming curve can be switched to each other via DALI interface.)
- Push dimming
- Synchronous dimming: up to 10 pcs of power supplies share one IP address
- Warranty: 7 years (Please refer to the warranty condition.)

## Application

- Plant lighting
- Indoor office lighting
- Decorative lighting
- Commercial lighting
- Residential lighting
- Flood light

## Technical Data

| Full Model Number | | LF-GSD060YC | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Output** | Output Voltage | 25-42V | | | | | | | | |
| | Output Current | The output current is selectable via a DIP switch. Refer to the DIP switch table. | | | | | | | | |
| | | 1100 mA | 1150 mA | 1200 mA | 1250 mA | 1300 mA | 1350 mA | 1400 mA | 1450 mA | 1500 mA |
| | Ripple Voltage | <1V@20MHz | | | | | | | | |
| | Percent Flicker | Meet standards of CIE SVM (≤0.4%) and IEC PST (≤1%) | | | | | | | | |
| | Current Tolerance | ±5% | | | | | | | | |
| | Temperature Drift | ±10% | | | | | | | | |
| | Line Regulation | ±5% | | | | | | | | |
| | Start-up Time | <1s @230VAC | | | | | | | | |
| **Input** | Line Regulation | ±5% | | | | | | | | |
| | Input Voltage | 220-240VAC (voltage limit : 198-264VAC) | | | | | | | | |
| | DC Input Voltage | 310-340VDC (voltage limit : 280-374VDC) | | | | | | | | |
| | Input Frequency | 47Hz-63Hz | | | | | | | | |
| | Input Current | 0.5A Maximum | | | | | | | | |
| | Power Factor | ≥0.95@230VAC (LED load) | | | | | | | | |
| | Total Harmonic Distortion | ≤15% | | | | | | | | |
| | Efficiency | ≥88% @230VAC | | | | | | | | |
| | Inrush Current | ≤60A&350uS@230VAC (Maximum) | | | | | | | | |
| | Qty of the same model of power supplies that can be configured by a circuit breaker | Under the condition of 230VAC, the total quantity of the same model of power supply that can be configured by a type-B 16A circuit breaker is 12 pieces. | | | | | | | | |
| | Leakage Current | ≤0.7mA | | | | | | | | |
| | Stand-by Power Consumption | ≤0.5W (when the OFF signal of DALI takes effect) | | | | | | | | |
| **Protective Feature** | Open-Circuit Protection | <55V | | | | | | | | |
| | Short-Circuit Protection | Hiccup mode (auto-recovery) | | | | | | | | |
| **Environment Condition** | Working Temperature | -30℃ ~ +50℃ | | | | | | | | |
| | Working Humidity | 20-90%RH (no condensation) | | | | | | | | |
| | Storage Temperature/Humidity | -40℃ ~ 80℃(six months under class I environment);<br>10-90%RH (no condensation) | | | | | | | | |
| | Atmospheric Pressure | 86-106KPa | | | | | | | | |
| **Safety & Norm** | Certificate | TUV-ENEC, CCC, SAA, RCM, CE, CB | | | | | | | | |
| | Withstand Voltage | I/P-O/P: 3.75KV, 5mA, 60s | | | | | | | | |
| | Insulation Resistance | I/P-O/P: 500VDC, >100MΩ | | | | | | | | |
| | Surge Rating | IEC61000-4-5 (L-N: 1KV ) Class B | | | | | | | | |
| | Electrical Fast Transient/Burst | 1.2KV or 2.2KV (Class B) | | | | | | | | |
| | Safety Standard | EN 61347-2-13: 2014 / A1: 2017, EN 61347-1: 2015, EN 62384: 2016<br>IEC 61347-1: 2015, IE61347-2-3: 2014, IEC 61347-2-13: 2014<br>GB19510.1-2009, GB19510.14-2009 | | | | | | | | |

| | | |
|---|---|---|
| | Electromagnetic Interference | EN55015, EN61000-3-2 |
| | Electromagnetic Susceptibility | EN61000-4-2, 3, 4, 5, 6, 8, 11; EN61547; IEC61000-4-13 |
| | EMI Light Fixture Type | (Typical): panel light |
| | Electrostatic Discharge (ESD) | Air: 8KV; touch: 4KV (Class B) |

## Others

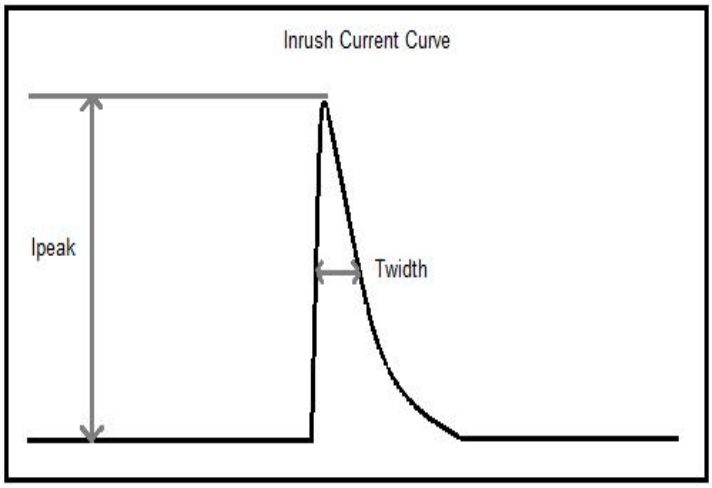
| | | |
|---|---|---|
| **Others** | IP Rating | IP20 |
| | RoHS | RoHS 2.0 (EU) 2015/863 |
| | Warranty Condition | 7 years (Tc: 83 ℃) |
| | DALI Executive Standard | IEC 62386-101, 102, 207: DALI 2.0 |
| | Noise Rating | ≤ 29db (Tested in a silent room and the noise collector was 10cm away from the power supply.) |
| | TRIAC Dimmer | / |
| **Testing Equipment** | AC power source: CHROMA6530, digital power meter: CHROMA66202, Oscilloscope: Tektronix DPO3014, DC electronic load: M9712B, LED board, constant temperature and humidity chamber: MQ-1000-3000, lightning surge generator: Everfine EMS61000-5B, rapid group pulse generator: Everfine EMS61000-4A, spectrum analyzer: KH3935, hi-pot tester: TH9201B, light flicker analyzer: LFA-3000, etc. | |
| **Testing Condition** | Unless otherwise stated, the parameters of the power factor and efficiency are the test results under the ambient temperature of 25℃ and humidity of 50%, AC input of 230V and 100% load. | |
| **Additional Remark** | 1. It is recommended that customer should install an over & under voltage protection and surge protection device to ensure safety before connecting to electricity.<br>2. The PC cover, housing, end caps and other parts of the LED driver inside the LED light fixture must conform to UL94 V-0 flammability standard or above.<br>3. As an accessory, the LED driver is not the only factor determining the EMC performance of the LED light fixture. The structure and the wiring of the light fixture are also relevant. Thus it's strongly recommended the LED light fixture manufacturer re-confirms the EMC of the whole LED light fixture. | |

## Circuit Breaker & Relevant Parameters

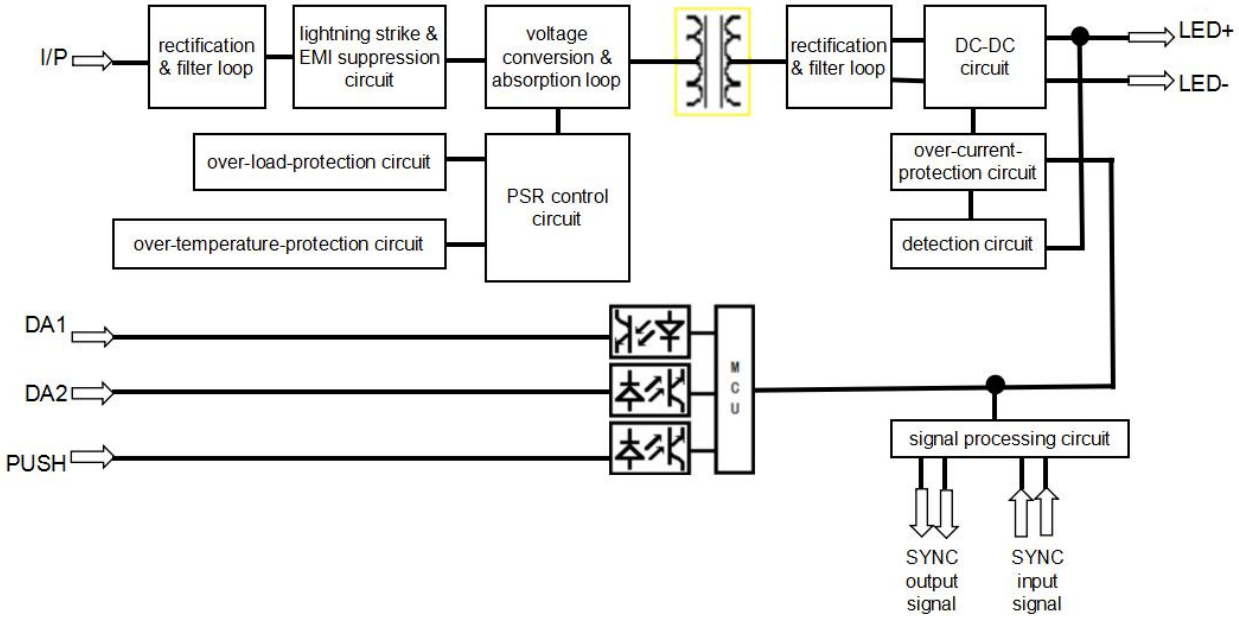
| Name | Value | Remark |
|---|---|---|
| Surge peak current (Ipeak) | 60A | Input voltage 230Vac |
| Surge half-peak time (Twidth) | 191μs | Input voltage 230Vac. Measure the time for Ipeak to drop to its half value. |
| Quantity of the same model of driver that can be configured by a type-B 16A circuit breaker. | 12 pcs (max.) | |

Driver quantities are below if use another type of circuit breaker.

| Type | Rank | Qty of accommodated drivers | Relative conversion ratio |
|---|---|---|---|
| B | 10A | 7 pcs | 63% |
| | 13A | 9 pcs | 81% |
| | 16A | 12 pcs | 100% (benchmark) |
| | 20A | 15 pcs | 125% |
| | 25A | 18 pcs | 156% |
| C | 10A | 13 pcs | 104% |
| | 13A | 16 pcs | 135% |
| | 16A | 21 pcs | 170% |
| | 20A | 25 pcs | 208% |
| | 25A | 31 pcs | 260% |




## Function Diagram



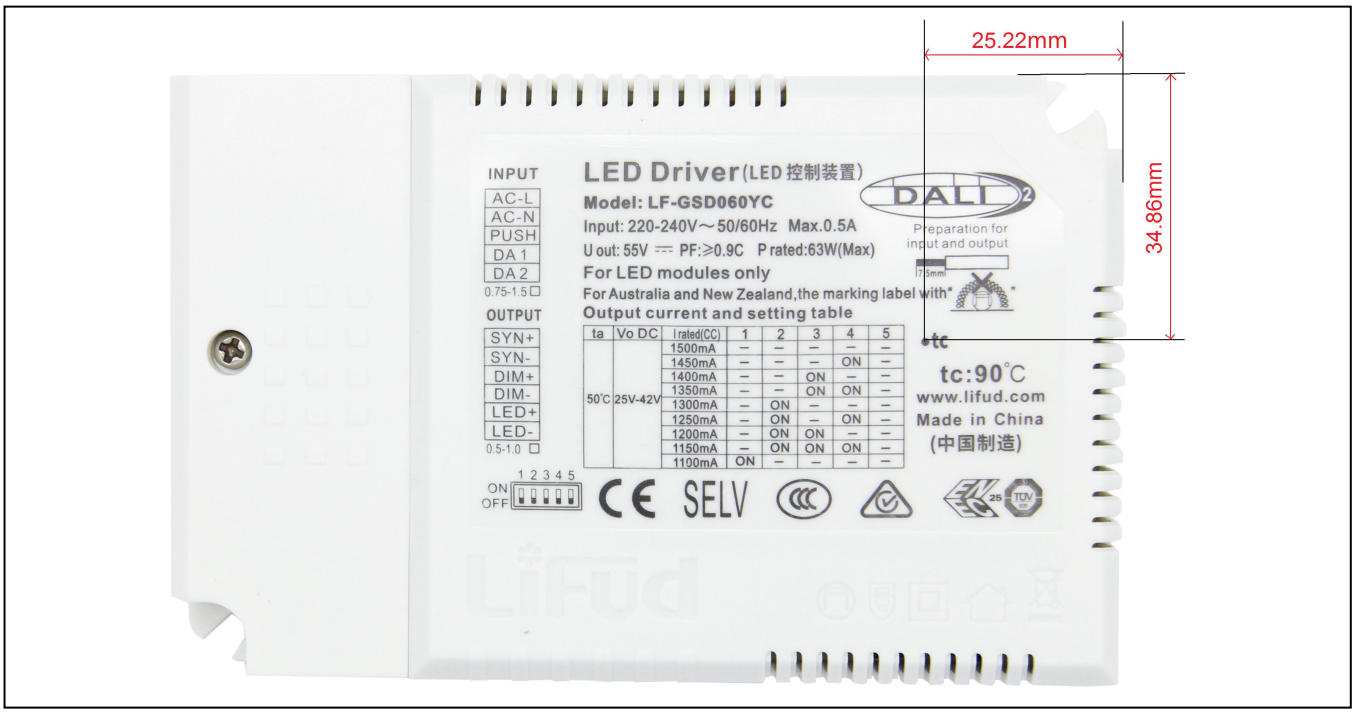

## DIP Switch Table

| DIP switch setting | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ta | Vo DC | Current | 1 | 2 | 3 | 4 | 5 |
| 50℃ | 25V — 42V | 1500mA | — | — | — | — | — |
| | | 1450mA | — | — | — | ON | — |
| | | 1400mA | — | — | ON | — | — |
| | | 1350mA | — | — | ON | ON | — |
| | | 1300mA | — | ON | — | — | — |
| | | 1250mA | — | ON | — | ON | — |
| | | 1200mA | — | ON | ON | — | — |
| | | 1150mA | — | ON | ON | ON | — |
| | | 1100mA | ON | — | — | — | — |

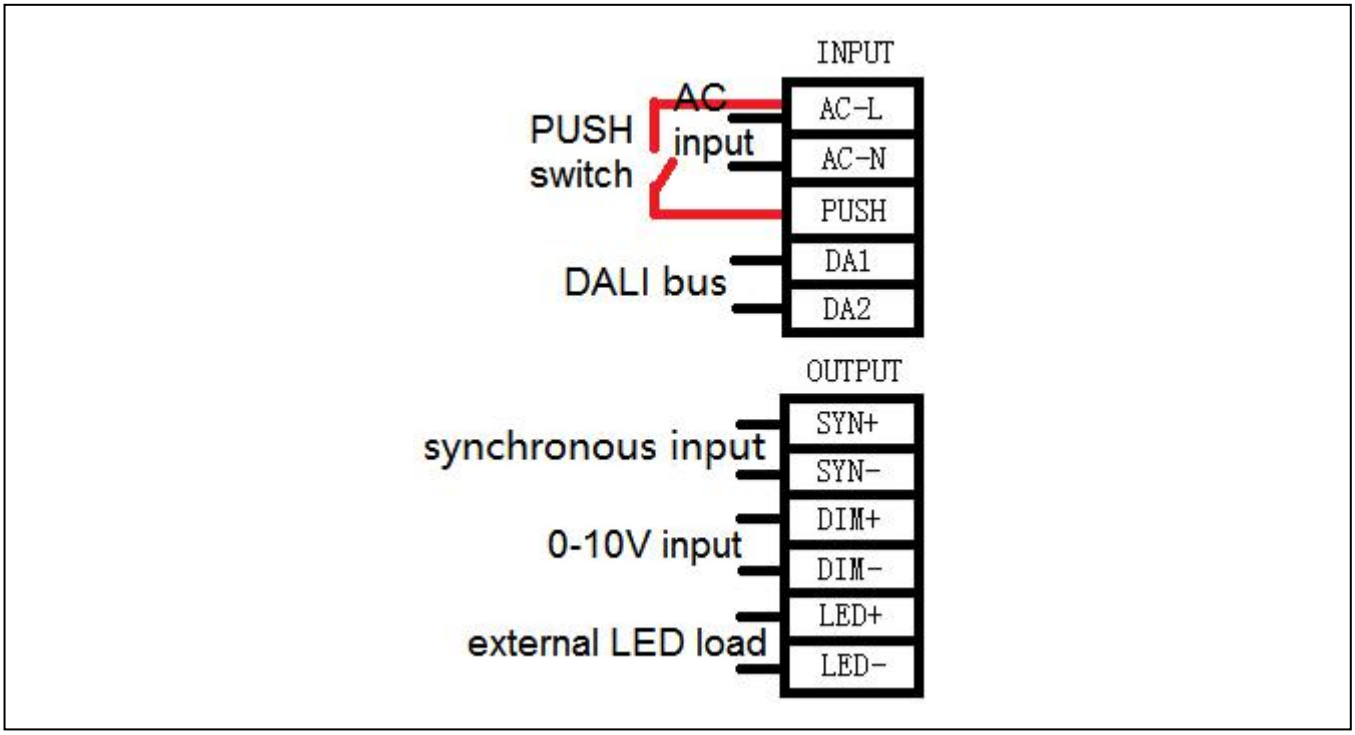
Remark: The default current for all DIP switch settings is 1500mA, except for the settings mentioned above.

## Label


## TC Spot



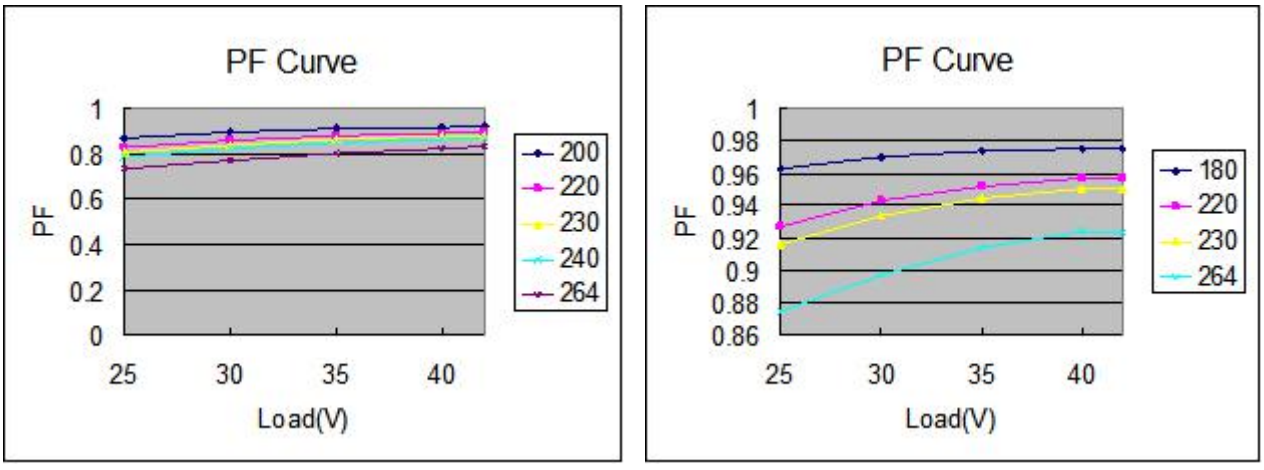
## Wiring Diagram




## Product Feature Curve

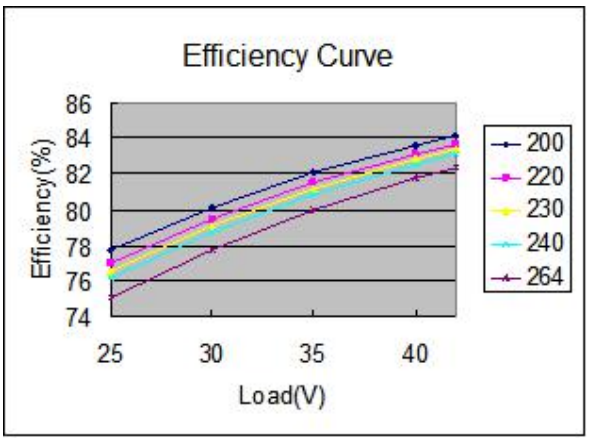
1. PF curve

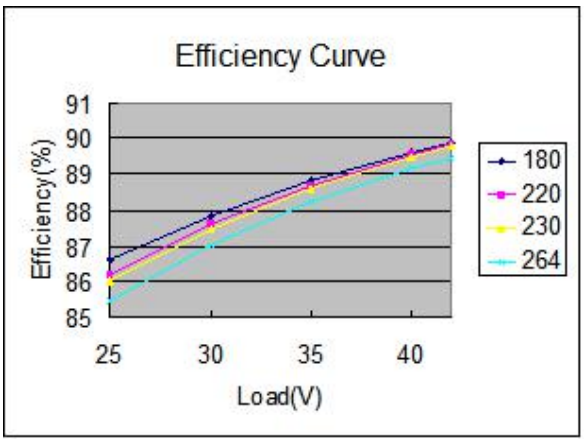
Here are the PF curves of the 1100mA gear (left) and the 1500mA gear (right).



2. Efficiency curve

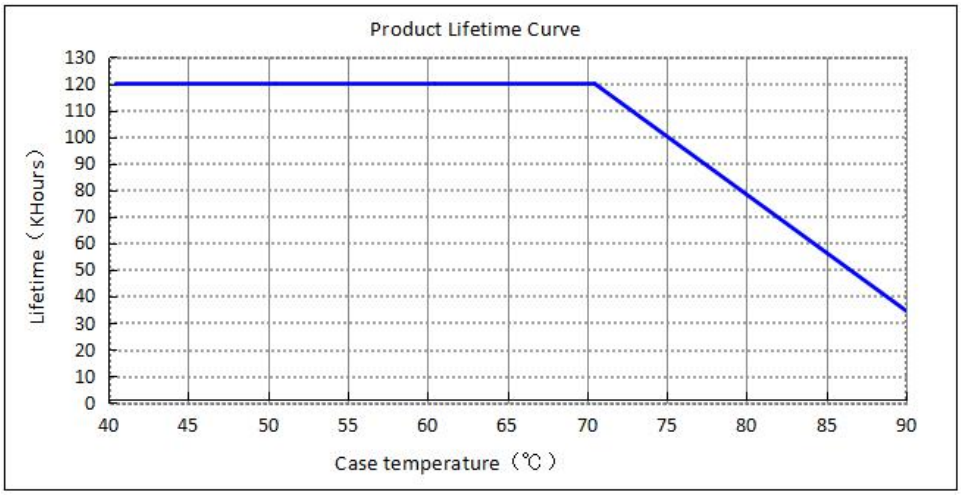
Here are the efficiency curves of the 1100mA gear (left) and the 1500mA gear (right).



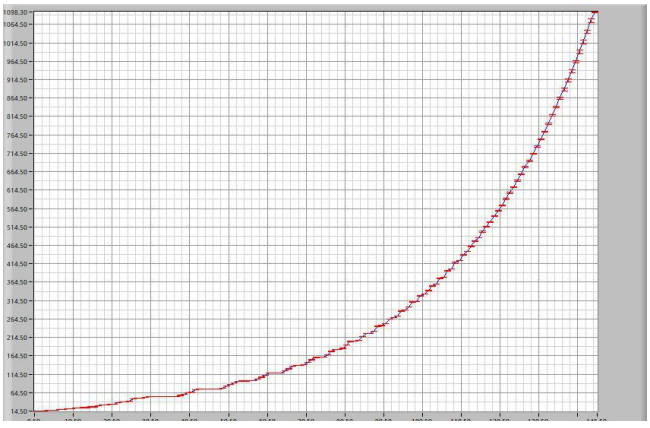

3. Lifetime curve

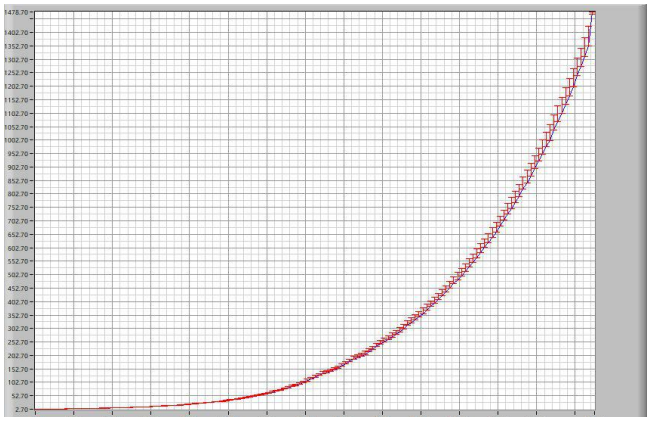
The curve below illustrates the driver's lifetime data when the its max. casing temperature in an airtight space reaches 40℃, 50℃, 60℃, 70℃, 80℃ and 90℃.




4. Dimming curve

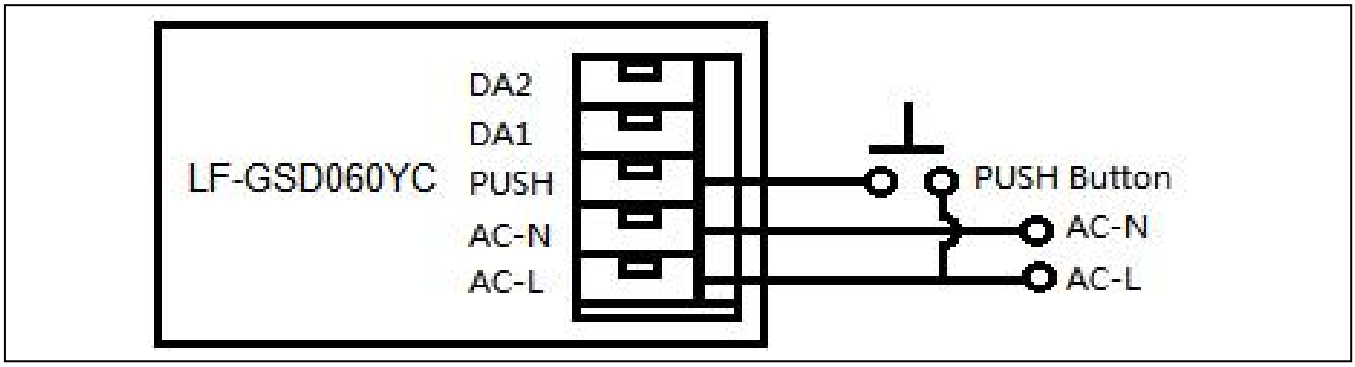
Here are the DALI logarithmic dimming curves in the condition of 25V 1100mA (left) and of 42V 1500mA (right)





## Instruction of Dimming Operation

1. Wiring diagram of push dimming




(1) Push dimming

| Operation | Operation Time | Function |
|---|---|---|
| Instant Push | 0.1 ~ 0.5 seconds | Light On / Off |
| Long Push | 0.5 ~ 11 seconds | Brighter / Dimmer |
| Reset Push | > 11 seconds | Back to Brightest |

(2) The push operation won't cause any variation if it's less than 0.1 second.

(3) When controlling via the same button, in 0-10V mode, up to 10 pcs of power supplies can be connected in parallel. In DALI & PUSH mode, using SYNC DIM connection, there can be up to 640 pcs of power supplies connected in parallel.

(4) The button can only be connected to the AC-L and the PUSH terminals of LF-GSD060YC. Connecting to AC-N will cause the push dimming function failure.

(5) The minimum dimming depth of the push dimming is 4% (Iout).

(6) The push dimming mode has memory function in case of power failure. Power up the driver again and the light will returned to the state before the power failure.

(7) In push dimming mode, the current dimming direction is opposite to the previous dimming direction.

2. DALI dimming

(1) Connect DALI signal to the DA1 and DA2 terminals.

(2) DALI protocol includes 16 groups and 64 IP addresses.

(3) The minimum dimming depth of the DALI dimming is 2% (Iout).

3. 0-10V, PWM & Rx dimming

(1) 0-10V, PWM and Rx signals should be connected to the DIM terminal.

(2) In 0-10V mode, the light turns off when the input voltage is below 0.3V and turns on when it's above 0.5V.

(3) The minimum dimming depth of the 0-10V dimming is 5% (Iout).

(4) 0-10V dimming

| Dimming voltage | ≤0.3V | 1V | 2V | 3V | 4V | 5V | 6V | 7V | 8V | 9V | 10V |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Rated current percentage | OFF | 5% | 20% | 30% | 45% | 55% | 70% | 80% | 90% | 100% | 100% |

(5) PWM dimming

| PWM signal | 0% | 10% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 100% |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Rated current percentage | OFF | 15% | 35% | 50% | 65% | 75% | 90% | 95% | 100% | 100% | 100% |

(6) Rx dimming

| Resistance | 0K | 10K | 20K | 30K | 40K | 50K | 60K | 70K | 80K | 90K | 100K |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Rated current percentage | OFF | 25% | 50% | 60% | 70% | 80% | 85% | 90% | 95% | 100% | 100% |

Remark: Factory default setting is 100% luminance.

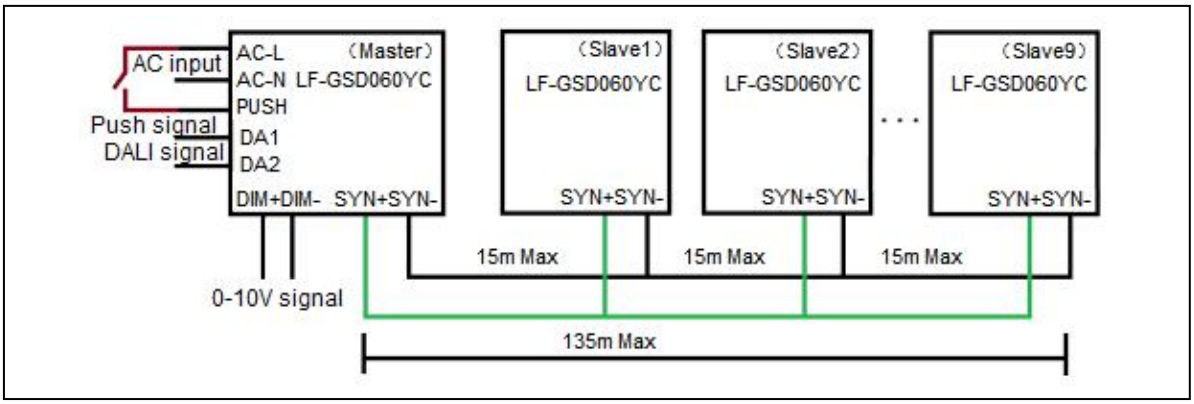
4. Synchronous dimming

(1) Maximum 10 pcs of LF-GSD060YC can be dimmed synchronously. (one master and nine slaves). The maximum wire length between two products is 15m. The maximum wire length between the master and the farthest slave is 135m. Wire diameter: 16-22AWG.

(2) The method of switching to synchronous dimming: choose a driver as a master and switch the fifth gear on the DIP switch to ON.

(3) The master can directly control slaves via DALI, 0-10V and push dimming signals to realize synchronous dimming function.

(4) Wiring diagram of synchronous dimming:




(5) Before using synchronous dimming function, make sure all LF-GSD060YC are at 100% output.

(6) When the synchronous dimming signal is withdrawn from the slaves, the slaves enter DALI mode by default.

5. Switch between dimming modes

(1) Switch to DALI dimming

After powering up the driver for two seconds, press the DALI dimmer for ON/OFF operation. And then it becomes DALI dimming mode.

(2) Switch to push dimming

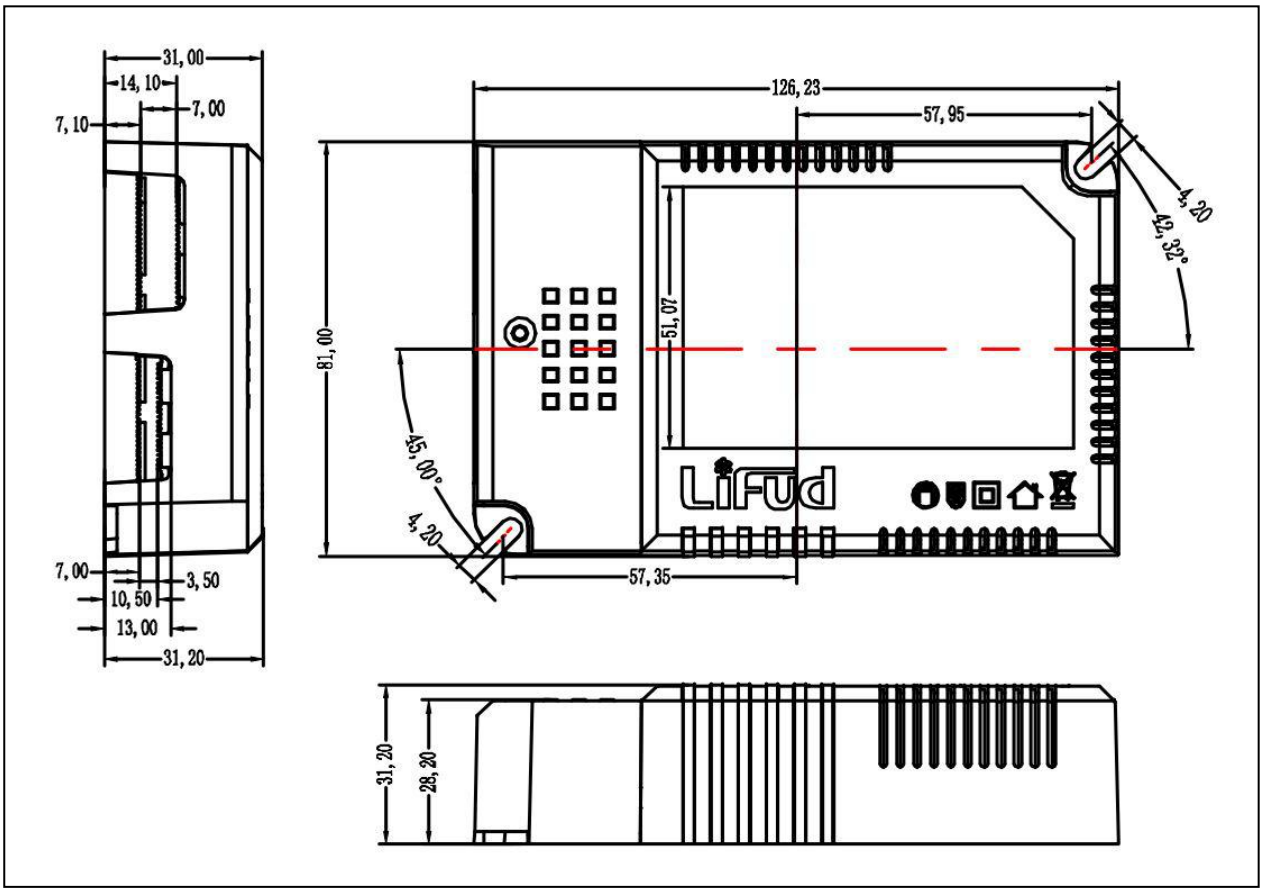
After powering up the driver for two seconds, long press the push switch for over three seconds. And then it becomes push dimming mode.

(3) Switch to 0-10V dimming

After powering up the driver for two seconds, adjust the 0-10V dimmer to the brightest or to the dimmest. One second later, it becomes 0-10V dimming mode.

Remark: In order to switch the DALI mode to another mode, the light must be on. It's a default setting that when the light is off, the DALI dimming mode cannot be switched to another mode.

## Dimension (unit: mm, tolerance: +0.5mm )




## Packaging Specification

| | |
|---|---|
| **Model** | LF-GSD060YC |
| **Packaging dimension** | 385×285×210mm (L×W×H) |
| **Quantity** | 8 pcs /layer; 6 layers /ctn; 48 pcs /ctn |
| **Weight** | 0.2192 Kg /pc; 11.67 Kg /ctn |

## Transportation & Storage

1. Transportation: by means of vehicles, boats and aircraft.

2. In transportation, there should be awnings for rain and sun protection. Civilized loading and unloading are required. There should be no severe vibration or impact.

3. The storage should be in accordance with the provisions of GB 3873-83. Products which have been stored for more than six months must be re-inspected. Use them only after passing the re-inspection.

## Attention

1. Use this product according to the specifications, please. Otherwise there may be malfunction.

2. Use luminaires that have not been certified or are not compatible with the drivers may cause fire, explosion or other hazards.

3. Man-made damage is not covered by warranty.

Remark: The final interpretation right of contents of this data sheet belongs to Lifud Technology Co., Ltd.