



## Waterproof constant voltage/constant current LED DRIVER

CYX-100 series

# Datasheet

## CYX-100-XPY

- ◇ Product Category: LED Waterproof LED DRIVER
- ◇ Version Number: R1.0
- ◇ Release date: October 1, 2018

# CHUANGLIAN

### ★ Product Features

- Wide input voltage range applicable globally: 90-305VAC
- High power factor up to 0.95
- IP67 protection rating
- Three-in-one dimming (isolated design, turn-off)
- Lightning protection: line-to-line 4KV, line-to-ground 6KV
- All-round protection: output short circuit/overvoltage/overcurrent/over-temperature protection
- Operating temperature range: -40°C to +70°C
- Five-year warranty



### 💬 Product Overview

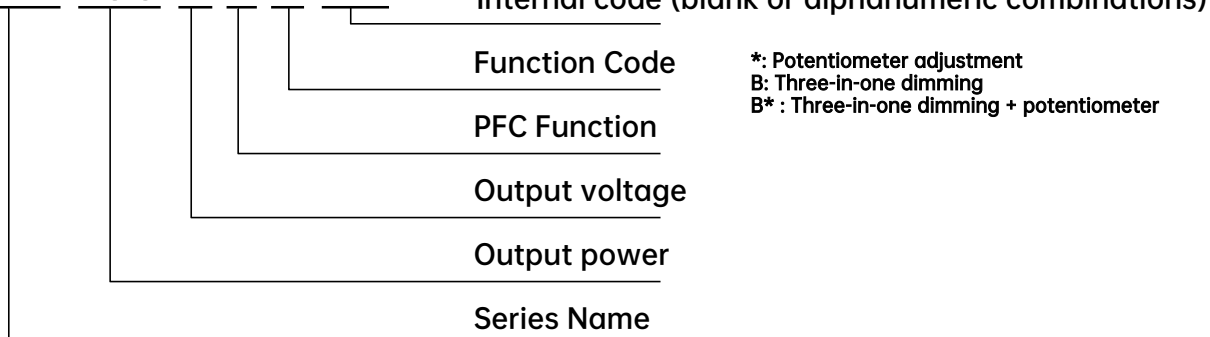
The CYX-100-XPY series is a 100W outdoor LED driver with two modes of constant voltage and constant current output, wide input voltage range, ultra-high power factor and extremely low THD. This series is heat-resistant, with a full-load operating ring temperature of up to 70 °C, and is designed for indoor and outdoor lighting, indoor and outdoor illumination, and other LED lighting. The adjustable output current facilitates the flexible design of LED lamps and greatly enhances their versatility. Ultra-high conversion efficiency, compact housing design, good heat dissipation, and all-round protection ensure that this series can work stably for a long time.

### 🚩 Areas of application

LED lighting applications such as road lighting, tunnel lighting, high mast lights, stadium lights, landscape lighting, architectural lighting, etc

## Product naming

**CYX-100-X P Y-ZZ**



## © Model list

| Constant voltage type<br>Product model | Output power<br>(W) | Output voltage<br>(V dc ) | Output voltage<br>Adjustable range [2]<br>(V dc ) | Output current<br>(A) | Power factor [1] | Total harmonics<br>Distortion [1] | Efficiency<br>@230VAC<br>typical values [1] |
|----------------------------------------|---------------------|---------------------------|---------------------------------------------------|-----------------------|------------------|-----------------------------------|---------------------------------------------|
| CYX-100-12P                            | 100                 | 12                        | /                                                 | 0-8.3                 | >0.95            | <10%                              | ≥91%                                        |
| CYX-100-13P※                           | 100                 | 13                        | /                                                 | 0-7.7                 | >0.95            | <10%                              | ≥90%                                        |
| CYX-100-24P                            | 100                 | 24                        | /                                                 | 0-4.17                | >0.95            | <10%                              | ≥91.5%                                      |
| CYX-100-36P                            | 100                 | 36                        | /                                                 | 0-2.8                 | >0.95            | <10%                              | ≥92%                                        |
| CYX-100-48P                            | 100                 | 48                        | /                                                 | 0-2.12                | >0.95            | <10%                              | ≥93%                                        |

| Constant current type<br>Product model | Output power<br>(W) | Output voltage<br>(V dc ) | Output current<br>Adjustable range [2]<br>(A) | Output current<br>(A) | Power factor [1] | Total harmonics<br>Distortion [1] | Efficiency<br>@230VAC<br>typical values [1] |
|----------------------------------------|---------------------|---------------------------|-----------------------------------------------|-----------------------|------------------|-----------------------------------|---------------------------------------------|
| CYX-100-36P*[3]                        | 100                 | 18-36                     | 1.7-2.8                                       | 0-2.8                 | >0.95            | <10%                              | ≥91%                                        |
| CYX-100-36PB*                          | 100                 | 18-36                     | 1.7-2.8                                       | 0-2.8                 | >0.95            | <10%                              | ≥91%                                        |
| CYX-100-48P*[3]                        | 100                 | 24-48                     | 1.2-2.12                                      | 0-2.12                | >0.95            | <10%                              | ≥92%                                        |
| CYX-100-48PB*                          | 100                 | 24-48                     | 1.2-2.12                                      | 0-2.12                | >0.95            | <10%                              | ≥92%                                        |

Note: [1] All performance parameters in the text are typical values measured at 25 ° C temperature, rated input voltage and full load, unless otherwise specified.

[2] Y =\*/B/B\*,\*: potentiometer adjustment; B: Three-in-one dimming; B\* : Three-in-one dimming + potentiometer

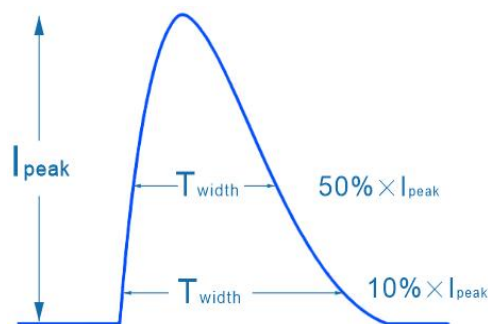
※ For custom models, please contact our sales staff or dealer representative for product information.

### ◎ Input characteristics:

| Parameters                    | Min                 | Typ  | Max                 | Notes                                           |
|-------------------------------|---------------------|------|---------------------|-------------------------------------------------|
| Enter the range of AC voltage | 90 V <sub>ac</sub>  |      | 305 V <sub>ac</sub> |                                                 |
| Rated input AC voltage range  | 100 V <sub>ac</sub> |      | 277 V <sub>ac</sub> |                                                 |
| Input frequency range         | 47 Hz               |      | 63 Hz               |                                                 |
| Maximum input current         |                     |      | 1.15A               | 120Vac/ full load                               |
|                               |                     |      | 0.55 A              | 230Vac/ full load                               |
|                               |                     |      | 0.5A                | 277Vac/ full load                               |
| Power factor                  |                     | 0.97 |                     | 120Vac, 50% to 100% load                        |
|                               |                     | 0.95 |                     | 230Vac, 50% to 100% load                        |
|                               |                     | 0.91 |                     | 277Vac, 75% to 100% load                        |
| Total harmonic distortion     |                     | 10%  |                     | 120Vac, 50% to 100% load                        |
|                               |                     | 10%  |                     | 230Vac, 50% to 100% load                        |
|                               |                     | 10%  |                     | 277Vac, 75% to 100% load                        |
| Standby power consumption     |                     |      | 0.5 W               | Dimming critical cut-off output (dimming model) |

### ◎ Input surge current:

|                                                        |       |     |       |     |       |     |
|--------------------------------------------------------|-------|-----|-------|-----|-------|-----|
| Input voltage                                          | 120 V |     | 230 V |     | 277 V |     |
| I <sub>peak</sub>                                      | /     |     | 40A   |     | /     |     |
| T <sub>width</sub> @50% × I <sub>peak</sub>            | /     |     | 300μS |     | /     |     |
| T <sub>width</sub> @10% × I <sub>peak</sub>            | /     |     | /     |     | /     |     |
| Circuit breaker model                                  | B16   | C16 | B16   | C16 | B16   | C16 |
| Configurable quantity (Power supply of the same model) | /     | /   | 7     | 12  | /     | /   |



◎ **Output characteristics:**

| Parameters (Constant Voltage Model) | Min   | Typ   | Max    | Notes                                     |
|-------------------------------------|-------|-------|--------|-------------------------------------------|
| Output voltage accuracy             | -3%   |       | +3%    | All models                                |
| Linear adjustment rate              | -0.5% |       | +0.5%  | All models                                |
| Load adjustment rate                | -2%   |       | +2%    | All models                                |
| Ripple and noise (pk-pk)<br>[4]     |       | 200mV |        | CYX-100-12P                               |
|                                     |       | 250mV |        | CYX-100-24P<br>CYX-100-36P<br>CYX-100-48P |
| Startup time                        |       |       | 1000ms | 120Vac, full load                         |
|                                     |       |       | 500ms  | 230Vac, full load                         |
| Rise time                           |       |       | 100ms  | 120Vac/230Vac, full load                  |
| Output overshoot voltage            |       |       | 5%×Vo  | 120Vac/230Vac, full load                  |

| Parameters (constant current model) | Min   | Typ   | Max    | Notes                         |
|-------------------------------------|-------|-------|--------|-------------------------------|
| Output current accuracy             | -5%   |       | +5%    | All models                    |
| Linear adjustment rate              | -0.5% |       | +0.5%  | All models                    |
| Load adjustment rate                | -2%   |       | +2%    | All models                    |
| No-load output voltage              |       |       | 42     | CYX-100-36P*<br>CYX-100-36PB* |
|                                     |       |       | 56     | CYX-100-48P*<br>CYX-100-48PB* |
| Ripple and noise (pk-pk)<br>[4]     |       | 5%×Io | 10%×Io | All models                    |
| Startup time                        |       |       | 1000ms | 120Vac, full load             |
|                                     |       |       | 500ms  | 230Vac, full load             |
| Rise time                           |       |       | 50ms   | 120Vac/230Vac, full load      |
| Output overshoot voltage            |       |       | 10%×Io | 120Vac/230Vac, full load      |

Note [4] : Switching power supply ripple noise test method: Test on the output terminal side of the power supply. During the test, add a 47uF electrolytic capacitor and a 0.1uF high-frequency capacitor to the end of the test lead. Use 20±2cm twisted-pair wires. Set the oscilloscope bandwidth to 20MHz. The oscilloscope probe needs to remove the probe cap and ground clamp.

"From power-on to 10% of the output current" (the time taken from when the cursor detects the input voltage to when the output voltage rises to 90% is the startup time, and for lighting constant current power supplies, the startup time is when the current rises to 10%)

# LED DRIVER waterproof

## CYX-100 series

### ◎ Efficiency:

| Parameters           | Min   | Typ   | Max | Notes                                           |
|----------------------|-------|-------|-----|-------------------------------------------------|
| Efficiency @230 V ac |       |       |     |                                                 |
| CYX-100-12P          | 90%   | 91%   |     | Ambient temperature: 25<br>± 5 °C, fully loaded |
| CYX-100-24P          | 90.5% | 91.5% |     |                                                 |
| CYX-100-36P          | 91%   | 92%   |     |                                                 |
| CYX-100-48P          | 92%   | 93%   |     |                                                 |
| CYX-100-36P*         | 90%   | 91%   |     |                                                 |
| CYX-100-36PB*        | 90%   | 91%   |     |                                                 |
| CYX-100-48P*         | 91%   | 92%   |     |                                                 |
| CYX-100-48PB*        | 91%   | 92%   |     |                                                 |

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### ◎ General Overview:

| Parameters                        |                                 | Min                                                                            | Typ      | Max     | Notes                                                                         |
|-----------------------------------|---------------------------------|--------------------------------------------------------------------------------|----------|---------|-------------------------------------------------------------------------------|
| Isolation withstand voltage [5]   | Input to output                 | 3750 V <sub>ac</sub>                                                           |          |         | The test duration is 1 minute, and the leakage current is less than 10mA      |
|                                   | Input to the housing            | 1600 V <sub>ac</sub>                                                           |          |         |                                                                               |
|                                   | Output to the casing            | 500 V <sub>ac</sub>                                                            |          |         |                                                                               |
|                                   | Input the swapped light         | 3750 V <sub>ac</sub>                                                           |          |         |                                                                               |
|                                   | Output the dimmed light         | 500 V <sub>ac</sub>                                                            |          |         |                                                                               |
|                                   | Adjust the light to the housing | 500 V <sub>ac</sub>                                                            |          |         |                                                                               |
| Insulation resistance             | Input to output                 | 100MΩ                                                                          |          |         | Test voltage: 500V dc                                                         |
|                                   | Input the shell                 | 100MΩ                                                                          |          |         |                                                                               |
|                                   | Output to the housing           | 100MΩ                                                                          |          |         |                                                                               |
| Leakage current                   |                                 |                                                                                | 0.75 MIU |         | UL8750; 277Vac/ 60Hz                                                          |
|                                   |                                 |                                                                                | 0.7 mA   |         | IEC60598-1; 240Vac/ 60Hz                                                      |
| Operating temperature             |                                 | -40℃                                                                           |          | +70℃    | Refer to the derating curve                                                   |
| Working humidity                  |                                 | 20%RH                                                                          |          | 95%RH   | No condensation                                                               |
| Storage temperature               |                                 | -40℃                                                                           |          | +85℃    |                                                                               |
| Storage humidity                  |                                 | 10%RH                                                                          |          | 95%RH   | No condensation                                                               |
| Altitude                          |                                 |                                                                                |          | 5000 m  | When the altitude exceeds 2000m, the temperature is derated by 3.5 °C / 1000m |
| Temperature coefficient           |                                 | -0.03%/℃                                                                       |          | 0.03%/℃ | 0 ~ 50 °C                                                                     |
| Mean Time Between Failures (MTBF) |                                 | 250000 h                                                                       |          |         | 230Vac, ring temperature 25 ° C, 80% load, MIL-HDBK-217F                      |
| Life time                         |                                 |                                                                                | 100000 h |         | Tc<80℃                                                                        |
| Safety shell temperature          |                                 |                                                                                |          | 90℃     |                                                                               |
| Quality assurance shell temp.     |                                 |                                                                                |          | 80℃     | Warranty shell temperature corresponding to the 5-year warranty               |
| Size                              |                                 | 148×66×35.5mm                                                                  |          |         | CYX-100-XP                                                                    |
|                                   |                                 | 163×66×35.5mm                                                                  |          |         | CYX-100-XP*/PB*                                                               |
| Net weight                        |                                 |                                                                                | 620g     |         | CYX-100-XP                                                                    |
|                                   |                                 |                                                                                | 700g     |         | CYX-100-XP*/PB*                                                               |
| Packaging                         |                                 | 20PCS/14Kg per box, outer box size: 435(length) *250(width) * 225(height) mm   |          |         |                                                                               |
|                                   |                                 | 20PCS/15Kg per box, outer box size: 430(length) * 200 (width) * 225(height) mm |          |         |                                                                               |

Note [5] : 1 When conducting the withstand voltage test on the product, short-circuit the L line to the N line, short-circuit the positive and negative of the output line, and short-circuit the positive and negative of the dimming line.  
2. The minimum isolation withstand voltage for this product is 3750Vac. If a higher test standard is required, please contact our sales representative or FAE

### ◎ Protection features:

| Parameters                       |                    | Min                                                                                                                                                                  | Typ               | Max               | Notes                                                                                              |
|----------------------------------|--------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|-------------------|----------------------------------------------------------------------------------------------------|
| Enter undervoltage protection    | Protection voltage | 70V <sub>ac</sub>                                                                                                                                                    | 80V <sub>ac</sub> | 90V <sub>ac</sub> | The output is turned off when the input voltage is lower than the protection voltage               |
|                                  | Recovery voltage   | 75V <sub>ac</sub>                                                                                                                                                    | 85V <sub>ac</sub> | 95V <sub>ac</sub> | Self-recovery mode. The driver restarts when the input voltage is higher than the recovery voltage |
| Output overvoltage protection    | CYX-100-XP         | 115%                                                                                                                                                                 |                   | 140%              | Hiccup mode, output automatically returns to normal when the fault is cleared                      |
|                                  | CYX-100-XP*/PB*    |                                                                                                                                                                      |                   |                   | Constant current mode, output voltage adaptive                                                     |
| Output overload protection       | CYX-100-XP         | 110%                                                                                                                                                                 |                   | 150%              | Hiccup mode, output automatically returns to normal when the fault is cleared                      |
|                                  | CYX-100-XP*/PB*    | 110%                                                                                                                                                                 |                   | 150%              | Constant current limit, output automatically returns to normal when the fault is cleared           |
| Over-temperature protection (Tc) |                    | 90                                                                                                                                                                   | 100               | 110               | Hiccup mode, output automatically returns to normal when the fault is cleared                      |
| Short-circuit protection         |                    | Power output protection when there is a short circuit fault at the output. When the short circuit fault is removed, the power automatically returns to normal output |                   |                   |                                                                                                    |

### ◎ Safety Specifications

| Safety Specifications | Country and Region  | Project          | In accordance with standards |
|-----------------------|---------------------|------------------|------------------------------|
| UL/CUL                | U.S. / Canada       | Safety standards | UL 8750                      |
|                       |                     |                  | CAN/CSA C22.2 No. 205.13     |
| CE                    | Europe              |                  | EN 61347-1, EN 61347-2-13    |
| CB                    | Member states of CB |                  | IEC 61347-1, IEC 61347-2-13  |
| CCC                   | China               |                  | GB 19510.1, GB 19510.14      |

◎ **Electromagnetic compatibility:**

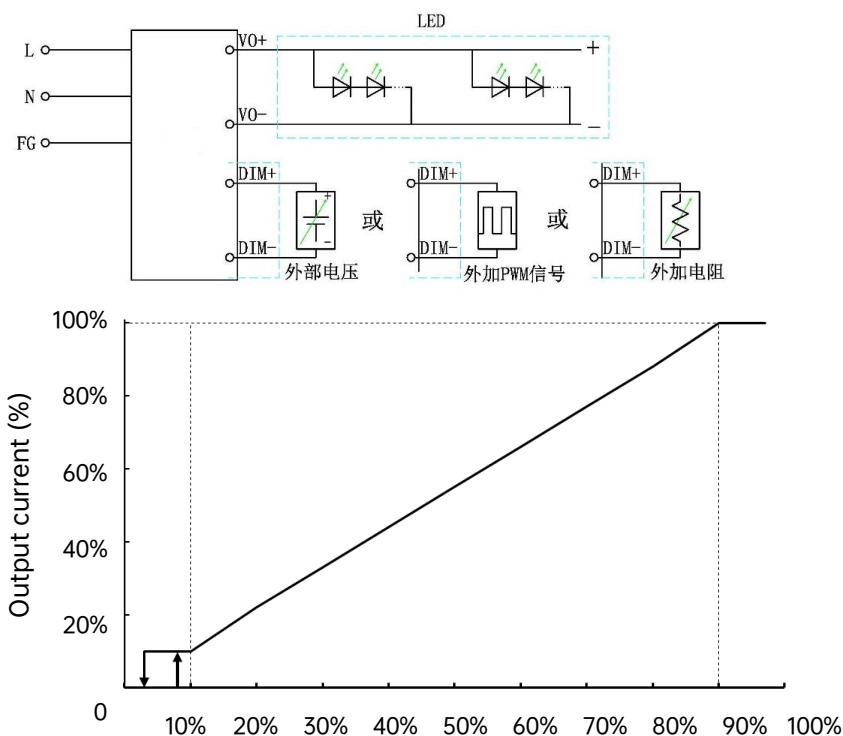
| EMI standard s [6] | Country and Region   |                        | In accordance with standards/criteria |         |
|--------------------|----------------------|------------------------|---------------------------------------|---------|
| FCC                | United States/Canada | Conducted harassment   | FCC part 15(ANSI C63.4)               | Class B |
|                    |                      | Radiation disturbance  | FCC part 15(ANSI C63.4)               | Class B |
| CE                 | Europe               | Transmitted harassment | EN 55015                              | Class B |
|                    |                      | Radiation disturbance  | EN 55015                              | Class B |
|                    |                      | Harmonic current       | EN 61000-3-2                          | Class C |
|                    |                      | Voltage flicker        | EN 61000-3-3                          |         |
| CCC                | China                | Conducted harassment   | GB/T 17743                            | Class B |
|                    |                      | Radiation disturbance  | GB/T 17743                            | Class B |
|                    |                      | Harmonic current       | GB/T 17625.1                          | Class C |

| EMS Standard | Country Region |                                                      | In accordance with standards/criteria |                            |            |
|--------------|----------------|------------------------------------------------------|---------------------------------------|----------------------------|------------|
| CE           | Europe         | Electrostatic discharge                              | EN 61000-4-2                          | Air 8 kV / Contact 6 kV    | Criteria A |
|              |                | Radiation immunity                                   | EN 61000-4-3                          | 80MHz- 1GHz 10V/m          | Criteria B |
|              |                | Electrical fast transient burst                      | EN 61000-4-4                          | ±2KV                       | Criteria B |
|              |                | Surge immunity                                       | EN 61000-4-5                          | CM±6KV / DM ±4KV           | Criteria A |
|              |                | Conducted harassment immunity                        | EN 61000-4-6                          | 10Vr.m.s                   | Criteria B |
|              |                | Power frequency magnetic field immunity              | EN 61000-4-8                          | 30A/m, continuous          | Criteria A |
|              |                | Immunity to voltage sags, drops and short interrupts | EN 61000-4-11                         | Drop 100%,0.5 periods      | Criteria B |
|              |                |                                                      |                                       | Drop 20%,250 periods       | Criteria B |
|              |                |                                                      |                                       | Drop 30%,25 periods        | Criteria B |
|              |                |                                                      |                                       | Interrupt 100%,250 periods | Criteria C |

Note [6] : 1. The power supply meets EMI standards, but since the power supply is part of the luminaires or lighting system, EMI-related confirmations are required in conjunction with the luminaires (terminal equipment, system).

### ◎ Overview of dimming function:

| Parameters                                         | Min                | Typ               | Max                | Notes                                                                                          |
|----------------------------------------------------|--------------------|-------------------|--------------------|------------------------------------------------------------------------------------------------|
| Maximum voltage tolerance of the dimming interface | -10V <sub>dc</sub> |                   | -20V <sub>dc</sub> |                                                                                                |
| 0-10V dimmed signal input                          | 0V <sub>dc</sub>   |                   | 10V <sub>dc</sub>  |                                                                                                |
| PWM high level                                     |                    | 10V <sub>dc</sub> |                    |                                                                                                |
| PWM low level                                      |                    | 0V <sub>dc</sub>  |                    |                                                                                                |
| PWM frequency                                      | 800Hz              |                   | 2000Hz             |                                                                                                |
| PWM duty cycle                                     | 0                  |                   | 100%               |                                                                                                |
| Resistance dimming                                 | 0Ω                 |                   | 100kΩ              | Output current =1/N resistance value when N power dimming interfaces are connected in parallel |
| Dimming interface current                          |                    | 100μA             |                    | 0-10V online output current                                                                    |
| Dimming range                                      | 8%                 |                   | 100%               | Adjustable dimming off output                                                                  |

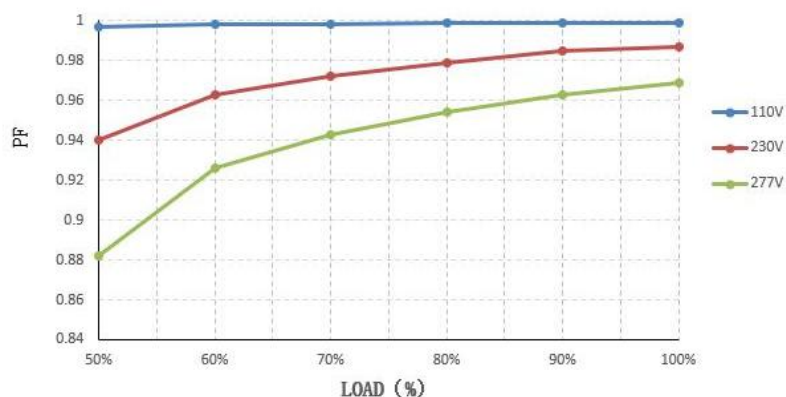


Dimming signal (5V or 10V analog voltage, 10V PWM signal, 0-100K resistor;)

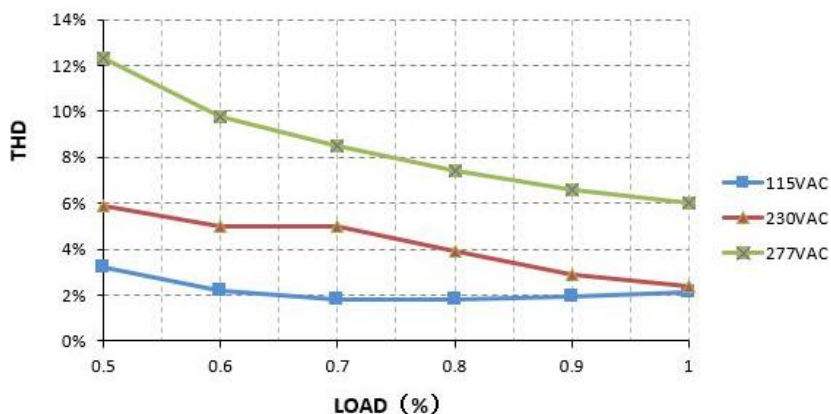
When the dimming signal is 100%, the corresponding analog signal is 5V or 10V, the PWM is 100%, the resistance is 100K, and so on for other percentages  
 Note: The dimming function is only applicable to constant current models

◎ **Characteristic curve:**

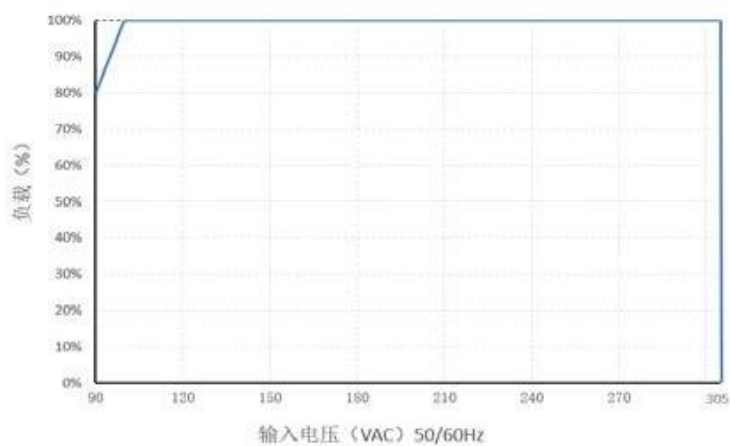
**Power factor VS output load**



**Total harmonic distortion VS output load**

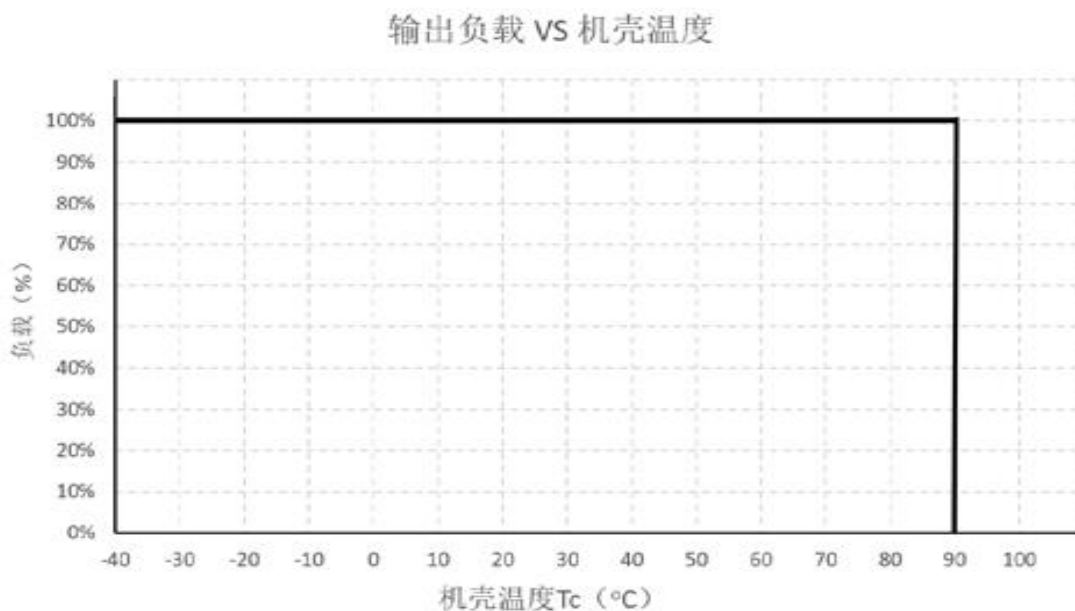


**Input voltage VS output load**

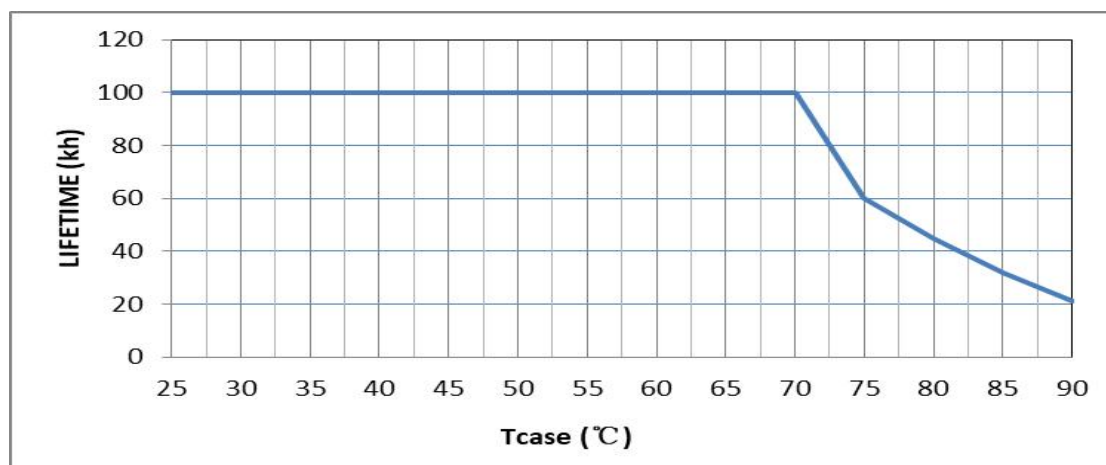


◎ Characteristic curve:

Shell temperature VS output load



Shell temperature VS life



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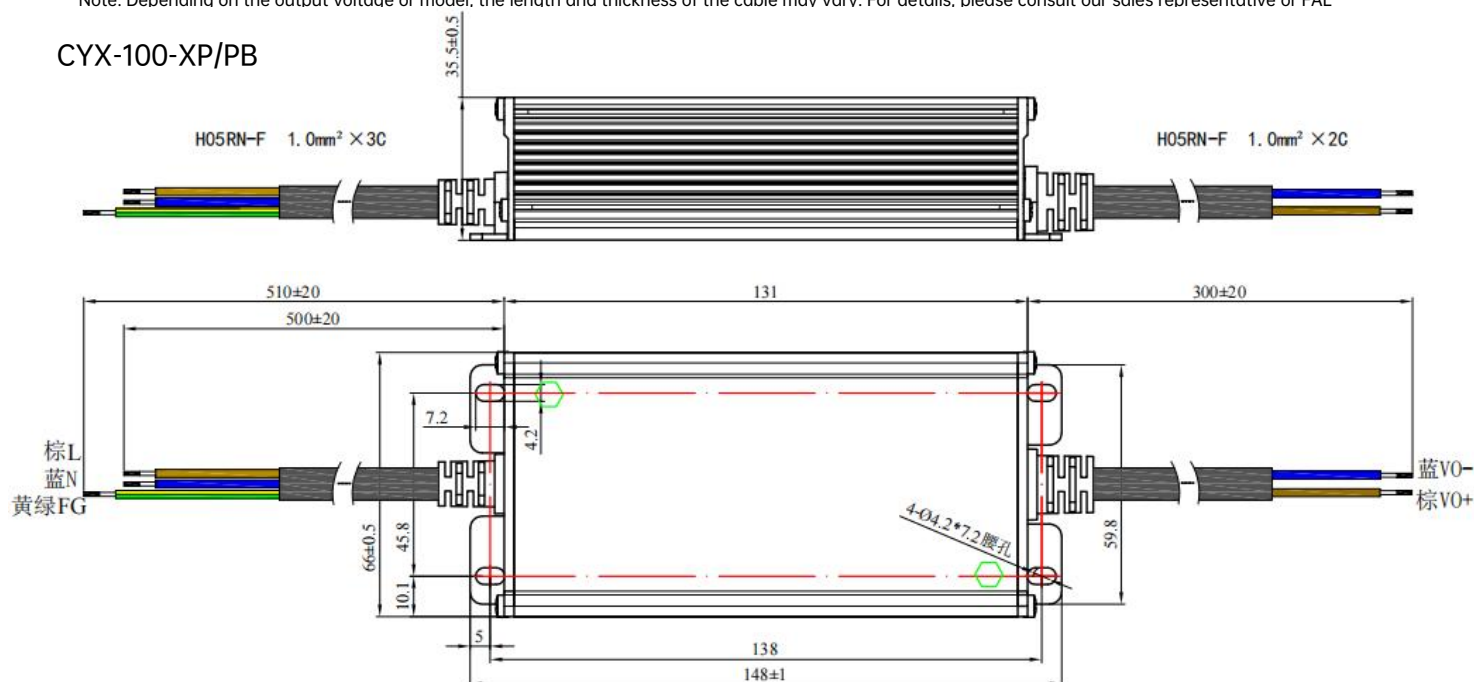
## CYX-100 series

### ◎ Mechanism size:

| Model                           | Specifications            |                                                                                                                  |
|---------------------------------|---------------------------|------------------------------------------------------------------------------------------------------------------|
| CYX-100-XPY<br>(Global Edition) | Input line                | SJOW, H05RN-F 3G1.00mm outer diameter: 8.3mm L=500 ± 20mm, stripped 35mm, tinned 10mm, brown, blue, yellow green |
|                                 | Output wire               | SJOW+H05RN-F 2×1.5mm <sup>2</sup> Outer diameter: 7.8mm L=300±20mm, peeling 35mm, dipping tin 10mm, brown, blue  |
|                                 | Adjust the light (If any) | UL21996 2 × 22AWG, outer diameter: 5.0mm L=350 ± 20mm, stripped 35mm, tinned 10mm, purple,gray                   |

Note: Depending on the output voltage or model, the length and thickness of the cable may vary. For details, please consult our sales representative or FAE

### CYX-100-XP/PB



### CYX-100-XP\*/PB\*

