

# SPECIFICATION

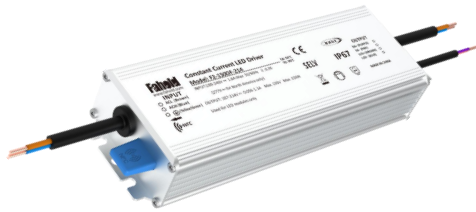
## F2-150D waterproof power supply

Product Name: F2-150D-XX

Summarize: 150W LED Driver

Version: A0

Release date: 2026-03-13



## FEATURES

- ✓ Efficiency up to 93.5%;
- ✓ Output current adjustment method: Online programming/NFC programming;
- ✓ Isolated dimming: DALI-2;
- ✓ DALI-2 Certified (Part 251, 252, 253);
- ✓ TIM CLO;
- ✓ Dim-to-Off with Standby Power  $\leq 0.5W$ ;
- ✓ Integrated Power Monitoring;
- ✓ Suitable for Luminaires with Protection Class I and II;
- ✓ Protections: SCP/OTP/OVP/OPP;
- ✓ Surge protection: CM: 10kV, DM: 6kV
- ✓ IP66/IP67;
- ✓ 5 years warranty.

## INTRODUCTION

F2-150D series is 150W NFC-programmable DALI-2 waterproof constant current drivers, It has IP66 and IP67 protection ratings. Its input voltage range is 90-305VAC, with high power factor. This series is specifically designed for smart lighting and health monitoring applications, provided Integrated Power Monitoring and Dim-to-Off function. Support the two-way digital communication function based on the DALI-2 communication protocol. High efficiency density and compact size design. Multiple protection designed which including surge protection, over voltage protection, short circuit protection and over temperature protection to ensure the barrier-free operation of this product.

## KEY PARAMETERS

| Model <sup>[1]</sup> | Max. Power (W) | Working mode <sup>[2]</sup> | V.out (Vdc) | I.out Adjustable range(A) | I.out Full Power range(A) | Default Output Current (A/Vdc) | Typ. Efficiency <sup>[3]</sup> |        | Typ. PF |        |
|----------------------|----------------|-----------------------------|-------------|---------------------------|---------------------------|--------------------------------|--------------------------------|--------|---------|--------|
|                      |                |                             |             |                           |                           |                                | 120Vac                         | 230Vac | 120Vac  | 230Vac |
| F2*-150D*-054        | 150            | C.C                         | 27-54       | 0.222-4.2                 | 2.78-4.2                  | 4.2/36                         | 91%                            | 93.5%  | 0.98    | 0.97   |
| F2*-150D*-143        | 150            | C.C                         | 72-143      | 0.084-1.5                 | 1.05-1.5                  | 1.5/100                        | 92%                            | 94%    | 0.98    | 0.97   |
| F2*-150D*-214        | 150            | C.C                         | 107-214     | 0.056-1.1                 | 0.70-1.1                  | 1.1/136                        | 92%                            | 94%    | 0.98    | 0.97   |

### NOTES:

[1] \* means different additional functions, please refer to the function selection table for details.

[2] The performance of the LED driver needs to be tested in conjunction with the entire lamp within the output voltage range.

[3] Test conditions: 230Vac, full load, 25°C.

## FUNCTION SELECTION TABLE

| Model        | DALI2 | Class I | Class II | NFC | 24VAUX. | D4I |
|--------------|-------|---------|----------|-----|---------|-----|
| F2-150D-XX   | ✓     | ✓       |          |     |         |     |
| F2-150DF-XX  | ✓     | ✓       |          | ✓   |         |     |
| F2B-150D-XX  | ✓     |         | ✓        |     |         |     |
| F2B-150DF-XX | ✓     |         | ✓        | ✓   |         |     |

注:

[4] XX means different output voltage.



## ■ INPUT CHARACTERISTICS

| Parameter                 | Min.   | Typ. | Max.   | Remark                   |
|---------------------------|--------|------|--------|--------------------------|
| Rated Input Voltage       | 100Vac | -    | 277Vac |                          |
| Input Voltage Range       | 90Vac  | -    | 305Vac |                          |
| Input Frequency           | 47Hz   | -    | 63Hz   |                          |
| Input Current (Typ.)      | -      | -    | 1.8A   | @100Vac,100% load        |
| Standby Power Consumption | -      | -    | 0.5W   | @230Vac Dimming shutdown |
| Inrush Current            | -      | -    | 75A    | 230Vac, 25°C cold start  |
| Power Factor              | 0.9    | -    | -      | 100-277Vac,70-100% load  |
|                           | 0.97   | -    | -      | 230Vac,100% load         |
| Total Harmonic Distortion | -      | 6%   | 10%    | 230Vac,100% load         |
|                           | -      | -    | 20%    | 100-277Vac,70-100% load  |

## ■ OUTPUT CHARACTERISTICS

| Parameter                                                               | Min.                       | Typ.  | Max.                 | Remark                                                                                                                                                                                                                   |               |
|-------------------------------------------------------------------------|----------------------------|-------|----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Current Accuracy                                                        | -5%loset                   | -     | +5%loset             | 100%负载                                                                                                                                                                                                                   |               |
| Efficiency(Typ.)                                                        | 89.5%                      | 91%   | -                    | 120Vac&100% load                                                                                                                                                                                                         | F2*-150D*-054 |
|                                                                         | 91%                        | 93.5% | -                    | 230Vac&100% load                                                                                                                                                                                                         |               |
|                                                                         | 89.5%                      | 92%   | -                    | 120Vac&100% load                                                                                                                                                                                                         | F2*-150D*-143 |
|                                                                         | 91%                        | 94%   | -                    | 230Vac&100% load                                                                                                                                                                                                         |               |
|                                                                         | 89.5%                      | 92%   | -                    | 120Vac&100% load                                                                                                                                                                                                         | F2*-150D*-214 |
|                                                                         | 91%                        | 94%   | -                    | 230Vac&100% load                                                                                                                                                                                                         |               |
| Output Voltage                                                          | 27V                        | -     | 54V                  | F2*-150D*-054                                                                                                                                                                                                            |               |
|                                                                         | 72V                        | -     | 143V                 | F2*-150D*-143                                                                                                                                                                                                            |               |
|                                                                         | 107V                       | -     | 214V                 | F2*-150D*-214                                                                                                                                                                                                            |               |
| No Load Output Voltage                                                  | -                          | -     | 60Vdc                | F2*-150D*-054                                                                                                                                                                                                            |               |
|                                                                         | -                          | -     | 160Vdc               | F2*-150D*-143                                                                                                                                                                                                            |               |
|                                                                         | -                          | -     | 235Vdc               | F2*-150D*-214                                                                                                                                                                                                            |               |
| Ripple Current                                                          | -                          | 5%    | 10%                  | 100% load, 20 MHz BW                                                                                                                                                                                                     |               |
| Line Regulation                                                         | -3%                        | -     | +3%                  |                                                                                                                                                                                                                          |               |
| Load Regulation                                                         | -3%                        | -     | +3%                  |                                                                                                                                                                                                                          |               |
| Turn-On Delay Time                                                      | -                          | -     | 1.0S                 | @230Vac,Compliance DALI-2 test.                                                                                                                                                                                          |               |
| Current Output Range<br>F2*-150D*-054<br>F2*-150D*-143<br>F2*-150D*-214 | 0.222A<br>0.084A<br>0.056A | -     | 4.2A<br>1.5A<br>1.1A | The range of nominal current can be adjusted by controller programming;<br>The total output power exceeds the Max. power (actual output voltage * actual output current=power), which cannot be covered by the warranty. |               |



## ■ OTHER PERFORMANCES

| Parameter                           | Min.         | Typ. | Max.  | Remark                                                                                    |
|-------------------------------------|--------------|------|-------|-------------------------------------------------------------------------------------------|
| Operating Temperature               | -40°C        | -    | +50°C | Ta                                                                                        |
| Safety enclosure temperature (Max.) | -40°C        | -    | +90°C | Tc                                                                                        |
| Humidity                            | 10%          | -    | 90%   | RH, (not condensed)                                                                       |
| Storage Temperature                 | -40°C        | -    | +75°C |                                                                                           |
| Storage Humidity                    | 10%          | -    | 90%   | RH, Non-condensing (sea level to 2000 meters)                                             |
| Vibration                           | 10Hz         | -    | 500Hz | X, Y, Z vertical axes vibrate at a constant acceleration of 1.0G (depth 3.5mm) for 1 hour |
| Degree Of Protection                | IP66/IP67    |      |       |                                                                                           |
| Lifespan                            | ≥50000 Hours |      |       | @230Vac, Tc: 75°C, 80% load. See Life Cycle and Tc Curves for details                     |
| MTBF                                | 218000 Hours |      |       | 25 °C ,230Vac, 80% load. (MIL-HDBK-217F)                                                  |
| Warranty                            | 5 年          |      |       | Tc:75°C                                                                                   |

### NOTES

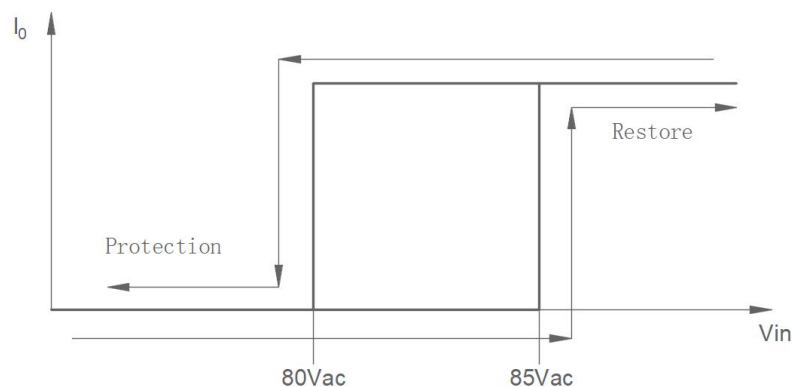
1. It is recommended that customers install over-voltage protection and surge protection devices in the power supply circuit of lamps to ensure the safety of electricity use.
2. Please use a special programmer to adjust the current of the power supply, and program and write through the dimming light.
3. When adjusting the output current of the power supply, please ensure that the total output power does not exceed the rated maximum power.
4. Unless otherwise specified, the above parameters are the test results under the conditions of ambient temperature 25°C, humidity 50%, 100% load, and input voltage 230Vac.

## ■ PROTECTIVE FUNCTION

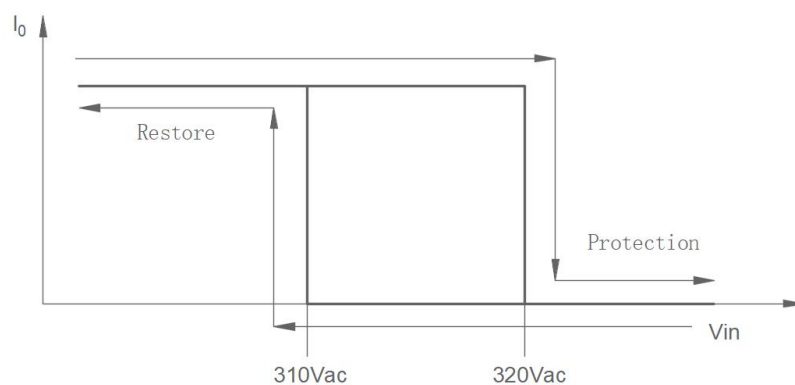
| Parameter                      |                    | Min.   | Typ.   | Max.   | Remark                                                                                               |
|--------------------------------|--------------------|--------|--------|--------|------------------------------------------------------------------------------------------------------|
| Input Under Voltage Protection | Protection Voltage | 70Vac  | 80Vac  | 90Vac  | When the input voltage is lower than the protection voltage, the output is turned off.               |
|                                | Restore Voltage    | 75Vac  | 85Vac  | 95Vac  | Self-recovery mode. When the input voltage is higher than the recovery voltage, the driver restarts. |
| Input Over Voltage Protection  | Protection Voltage | 310Vac | 320Vac | 330Vac | When the input voltage exceeds the protection voltage, the output is turned off.                     |
|                                | Restore Voltage    | 300Vac | 310Vac | 320Vac | Self-recovery mode. When the input voltage drops below the recovery voltage, the driver restarts     |

|                                 |                                                                                                                                                                                                                                                                                              |     |      |                                                                                               |
|---------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|------|-----------------------------------------------------------------------------------------------|
| Over Temperature Protection(TC) | 90℃                                                                                                                                                                                                                                                                                          | 93℃ | 105℃ | Drop current when OTP, and it can be automatically restored after the abnormality is removed. |
| Output Over Voltage Protection  | When the product exceeds the limit range, it enters the protected state. After the fault is removed, the product will resume working state.                                                                                                                                                  |     |      |                                                                                               |
| Open Circuit Protection         | When the LED is open-circuited, the product will enter the protection state, such as burping or clamping at the highest output voltage state, and the product will not be damaged. When the fault is eliminated or the power is restarted, the power supply will return to normal operation. |     |      |                                                                                               |
| Short Circuit Protection        | When the output is short-circuited, the input power will be reduced accordingly. After the short-circuit condition is removed, the power supply will automatically return to normal.                                                                                                         |     |      |                                                                                               |

### ● INPUT UNDER VOLTAGE PROTECTION



### ● INPUT OVER VOLTAGE PROTECTION



### ■ DALI-2

| Parameter         | Min.  | Typ. | Max.  | Remark |
|-------------------|-------|------|-------|--------|
| DA, DA High Level | 9.5V  | 16V  | 22.5V |        |
| DA, DA Low Level  | -6.5V | 0V   | 6.5V  |        |
| DA, DA Current    | 0mA   | -    | 2mA   |        |

## ■ SAFETY CRITERION

| Safety Category | Country / Territory | Criterion                           | Approved |
|-----------------|---------------------|-------------------------------------|----------|
| CCC             | China               | GB19510.1, GB19510.14               |          |
| CE              | Europe              | EN61347-1, EN61347-2-13             |          |
|                 |                     | EN62493                             |          |
| ENEC            |                     | EN62384                             |          |
| CB              | CB countries        | IEC61347-1, IEC61347-2-13, IEC62493 |          |
| EAC             | Russia              | IEC61347-1, IEC61347-2-1,           |          |
| BIS             | India               | IS 15885(PART 2/SEC 13)             |          |
| UL              | USA                 | UL 8750, UL1310,UL1012              |          |
| cUL             | Canada&USA          | CSA C22.2 No.250.13                 |          |
| KC              | Korea               | K61347-1, K61347-2-13               |          |
| PSE             | Japan               | J61347-1, J61347-2-13               |          |
| SAA             | Australia           | AS/NZS IEC 61347.2.13               |          |
|                 |                     | AS/NZS 61347.1                      |          |

| Safety Category | Country / Territory | Criterion            | Approved |
|-----------------|---------------------|----------------------|----------|
| DALI-2          |                     | IEC62386-101,102&207 |          |

注：DALI Parts：101,102,207,251,252,253

| EMI/EMS                    | Criterion                                                      | Approved                |
|----------------------------|----------------------------------------------------------------|-------------------------|
| Conduction Emission        | EN 55015: 2013+A1:2015<br>FCC Part15 Subpart B;ANSI C63.4:2014 | Class B                 |
| Radiation Emission         | EN 55015: 2013+A1:2015<br>FCC Part15 Subpart B;ANSI C63.4:2014 | Class B                 |
| Harmonic Current Emissions | IEC/ EN 61000-3-2;GB/T 17625.1                                 | Class C                 |
| Surge                      | IEC/EN61000-4-5                                                | Class B(DM6KV, CM 8KV)  |
|                            | EN61547                                                        | Class B(DM6KV, CM 10KV) |

## ■ SAFETY KEY TEST ITEMS

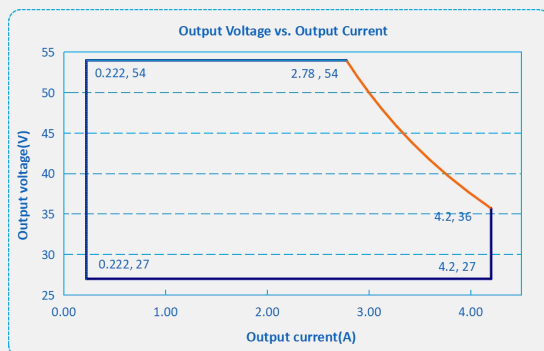
| Models                 | I Models   |            |            | REMARK                |
|------------------------|------------|------------|------------|-----------------------|
| Insulation Requirement | UL         | ENEC       | CCC        |                       |
| Input-Output           | 2U+1000Vac | 4U+2000Vac | 4U+2000Vac | Reinforced insulation |
| Input-Case             | 2U+1000Vac | 2U+1000Vac | 2U+1000Vac | Basic insulation      |
| Input-Dim              | 2U+1000Vac | 2U+1000Vac | 2U+1000Vac | Basic insulation      |
| Output-Case            | 500V       | 500V       | 500V       | Basic insulation      |

| Models                 | II Models        |            |            | REMARK                            |
|------------------------|------------------|------------|------------|-----------------------------------|
| Insulation Requirement | UL               | ENEC       | CCC        |                                   |
| Input-Output           | 2U+1000Vac       | 4U+2000Vac | 4U+2000Vac | Reinforced insulation             |
| Input-Case             | 2U+1000Vac       | 4U+2000Vac | 4U+2000Vac | Reinforced insulation             |
| Input-Dim              | 2U+1000Vac       | 2U+1000Vac | 2U+1000Vac | Basic insulation                  |
| Output-Case            | 500V             | 500V       | 500V       | Basic insulation                  |
| OTHERS                 | Criterion        |            |            | REMARK                            |
| Insulation Resistance  | $\geq 10M\Omega$ |            |            | Input-Output, Test Voltage:500Vdc |
| Ground Resistance      | $\leq 0.1\Omega$ |            |            | 25A/1min                          |
| Leakage Current        | $\leq 0.75mA$    |            |            | 277Vac                            |

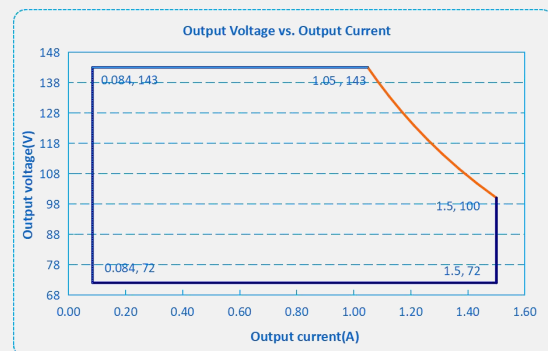
## NOTES:

1. The LED Driver itself meets with EMC standard. However, LED Driver's EMC should be re-checked when integrated into lighting systems due to unexpected interference as component.
2. Please short L and N, LED+ and LED-, Dim+ and Dim - when Hi-pot test.
3. The CCC withstand voltage test needs to disconnect the built-in lightning protection tube. According to the IEC 60598-1:14 standard section 10.2, the "built-in lightning protection tube" can be marked on the nameplate to disconnect the discharge tube on testing.

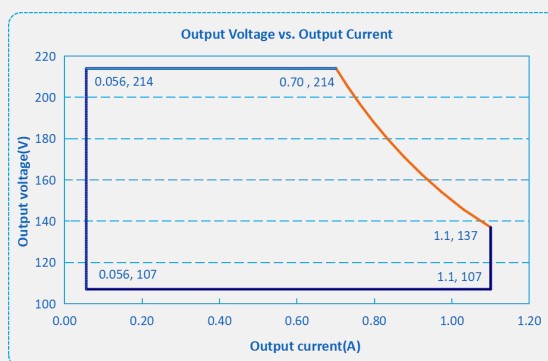
## WORKING CURVE



F2-150D-054



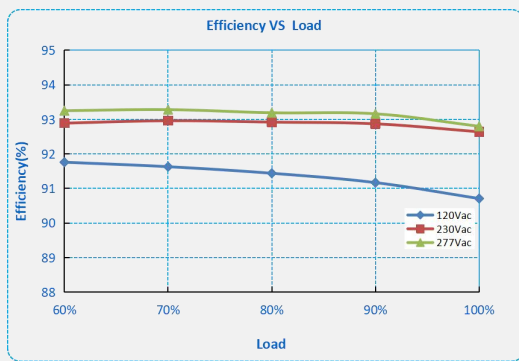
F2-150D-143



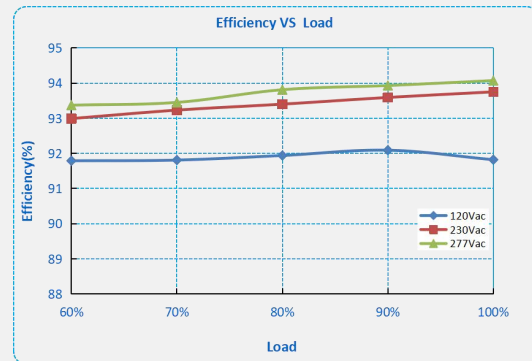
F2-150D-214



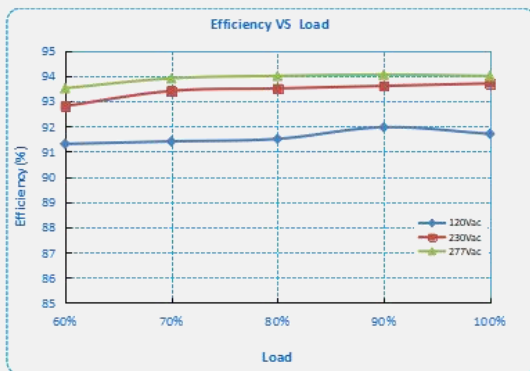
## EFFICIENCY VS. LOAD



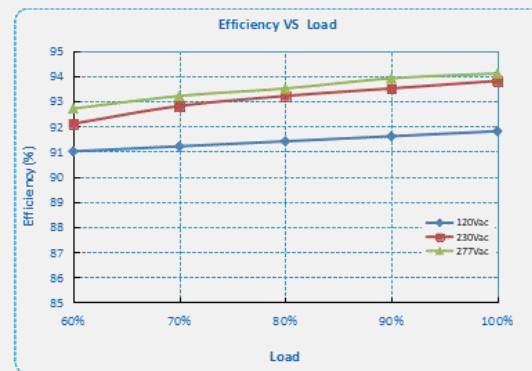
F2-150D-054 ( $I_o=4A$ )



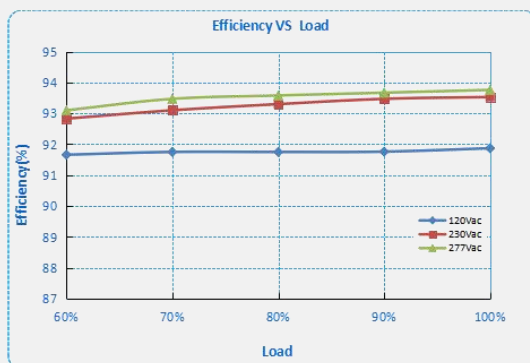
F2-150D-054 ( $I_o=2.78A$ )



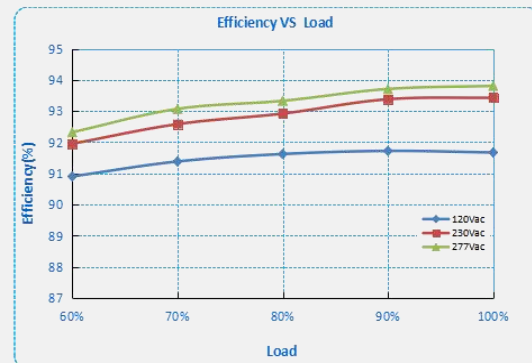
F2-150D-143 ( $I_o=1.5A$ )



F2-150D-143 ( $I_o=1.05A$ )

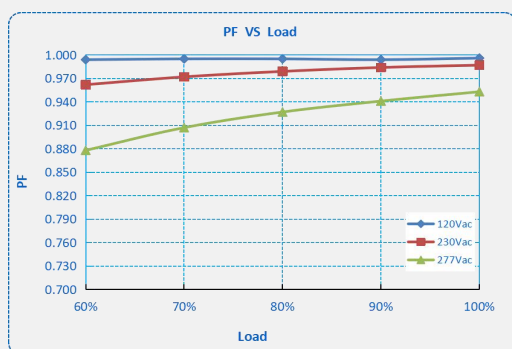


F2-150D-214 ( $I_o=1.1A$ )



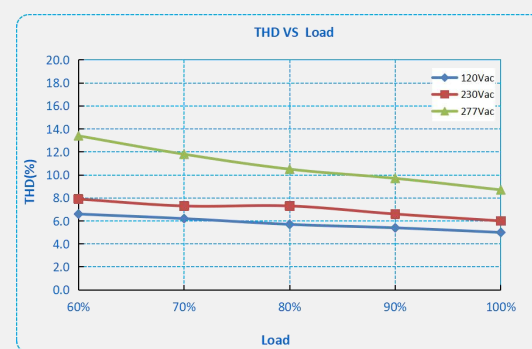
F2-150D-214 ( $I_o=0.7A$ )

## PF VS LOAD CURVE



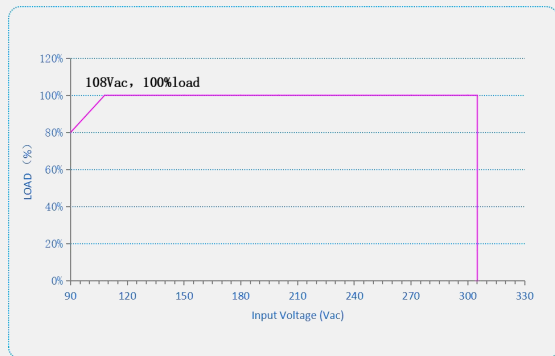
F2-150D Series

## THD CURVE



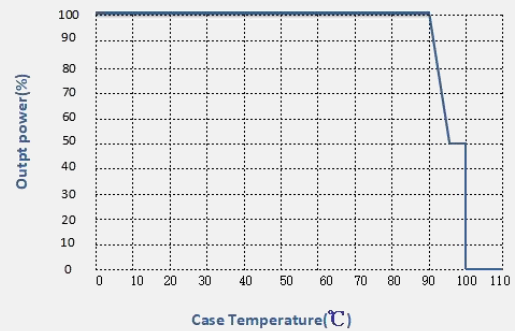
F2-150D Series

### DERATING CURVE



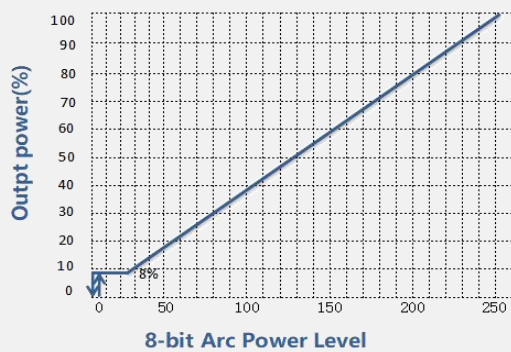
Output Power Vs. Input Voltage

### Output power Vs. Case Temperature

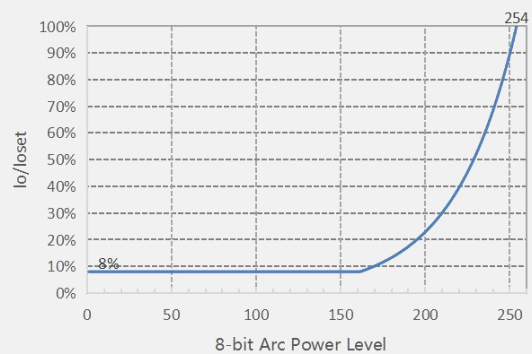


Output Power Vs. T case

### Dimming Curve

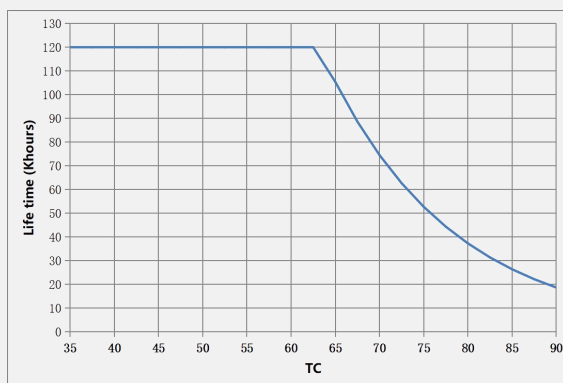


Linear Dimming Curve



Logarithmic Dimming Curve

### Life Vs. Case



Life Vs. Case

### ■ Software OTP function (optional)

- Software OTP is an optional function. OTP parameters can be set through software page.

### ■ Six periods Time Dimming (optional)

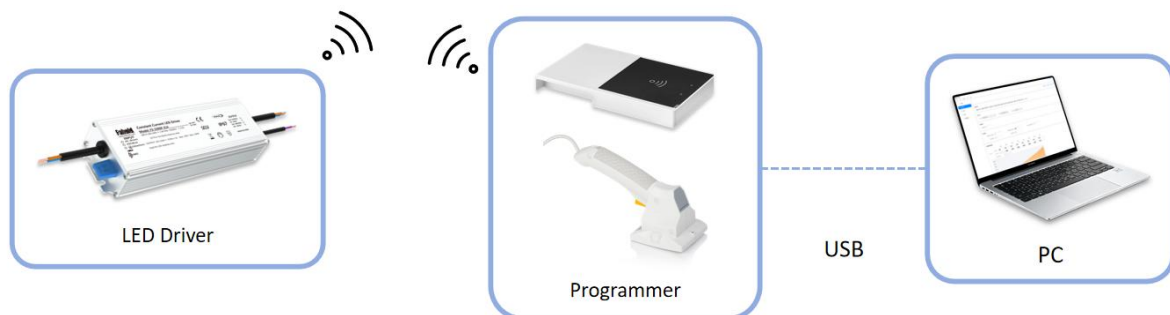
Time dimming control includes 3 kinds of modes, they are Self Adapting-Midnight, Self Adapting- Percentage and Traditional Timer.

- Self Adapting-Midnight: Automatically adjusts the dimming curve based on the on-time of past two days (if difference <15 minutes), assuming that the center point of the dimming curve is midnight local time.
- Self Adapting-Percentage: Automatically adjusts the on-time of each step by a constant percentage = (actual on-time for the past 2 days if difference <15 min) / (programmed on-time from the dimming curve).
- Traditional Timer: Follows the programmed timing curve after power on with no changes.

### ■ Constant Light Output (optional)

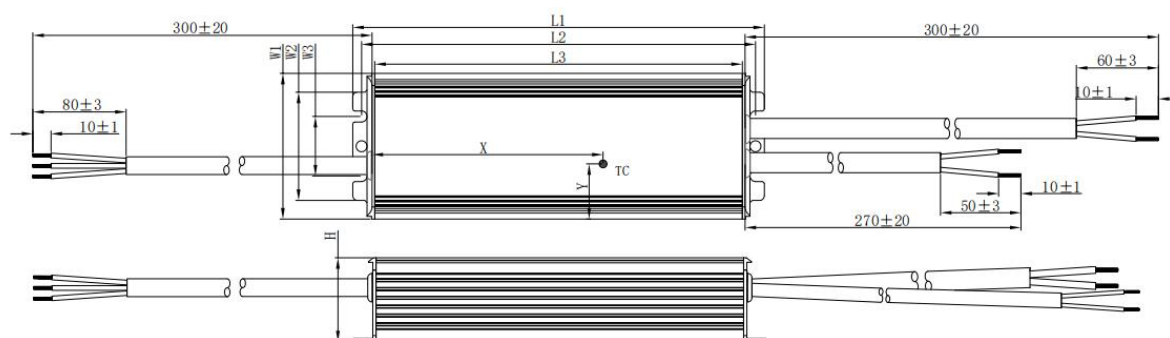
- Output Lumen Compensation(CLO) may be used to maintain constant light output over the life of the LEDs by driving them at a reduced current when new, then gradually increasing the drive current over time to counteract LED lumen degradation.

### ■ Programming connection schematic diagram

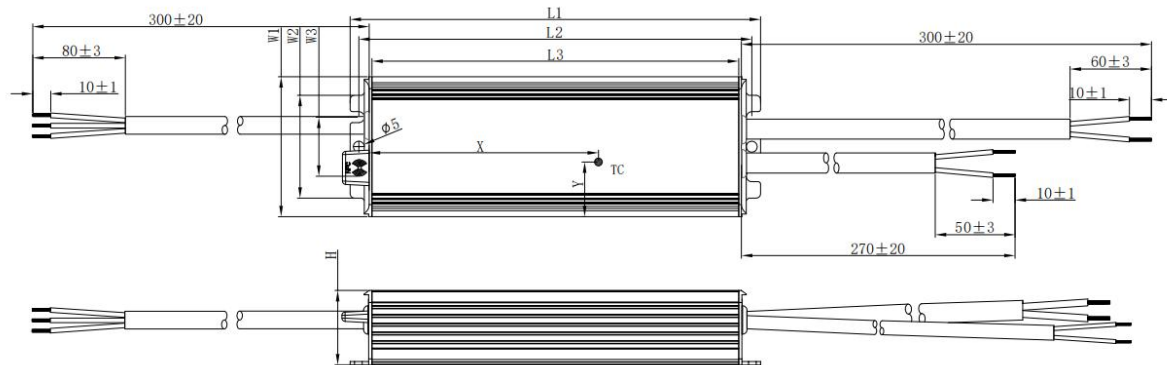


### ■ Mechanical Outline(unit: mm,unmarked tolerance $\pm 1$ mm)

#### ● Online programming



### ● With NFC



| Model   | L1  | L2  | L3    | W1 | W2 | W3 | H  | TC X | TC Y |
|---------|-----|-----|-------|----|----|----|----|------|------|
| F2-150D | 178 | 170 | 157.5 | 64 | 47 | 27 | 34 | 100  | 20   |

| Wires              | Specification                                                                    | Remark    |
|--------------------|----------------------------------------------------------------------------------|-----------|
| Input Wires        | H05RN-F 3*1.0mm 300/500V, L=300±20mm, Brown: L, Blue: N, Yellow/green : PE       | I Models  |
|                    | SJTW 3*18AWG 300V, L=300±20mm, Black: L, White: N, Green : PE                    |           |
|                    | SJOW 3*17AWG/3*1.0mm <sup>2</sup> 300/500V, L=300±20mm                           |           |
|                    | Brown: L, Blue: N, Yellow/green : PE                                             |           |
| Input Wires        | H05RN-F 2x1.0mm <sup>2</sup> 300/500V, L=300±20mm, Brown: L, Blue: N             | II Models |
|                    | H05RN-F 3x1.0mm <sup>2</sup> 300/500V, L=300±20mm, Brown: L, Blue: N, Black : PE |           |
| Output Wires       | H05RN-F 2*1.0mm 300/500V, L=270±20mm Brown: LED+, Blue: LED -                    |           |
|                    | SJTW 2*18AWG 300V, L=270±20mm, Red: LED+, Black: LED-.                           |           |
|                    | SJOW 2*17AWG/2x1.0mm <sup>2</sup> 300/500V, L=270±20mm, Brown: LED+, Blue: LED-. |           |
| Dimming/AUX. Wires | UL21996 2C*22AWG, 300V, L=300±20mm Purple: DA+, Pink: DA-                        |           |

### ■ PACKAGE

1. Outer packing box dimensions: L×W×H=420×270×225(mm)
2. Quantity of packing per box of products: 30pcs
3. Net weight: 730g±150g
4. Net weight of the whole box: 20.7kg±10g

## ■ Installation considerations

1. If components are out of stock in the market, Fahold will select other flat brands from the list of qualified supplier list.
2. Remark:The LED Driver itself complies with EMC standard. However,the LED Driver's EMC should be re-checked with lamp when integrated into lighting systems.
3. The lightning protection level of the power supply meets the standard requirements of IEC61000-4-5 and other countries. If it is used in lightning-prone areas or areas with relatively complex power grid environment, it is recommended to install a professional lightning protection module on the AC input end of the power supply.
4. The product belongs to Class I,the input ground wire and metal casing should be well grounded when in use,ensure that the grounding impedance  $\leq 100\text{m}\Omega$ .
5. Please insulate and waterproof the dimming cable when it is not in use.
6. The voltage-withstand of LED chip and Aluminum PCB  $> 3\text{KV}$ .
7. Safety space between Aluminum PCB and LED coppers  $> 5\text{mm}$ .
8. The safety distance between LED+ and LED- on Aluminum PCB  $> 1.8\text{mm}$ .
9. Minimize copper on Aluminum PCB to reduce junction capacitance and leakage current.
10. LED chip is recommended to be designed in parallel first and then in series.



[illegible]