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深圳市华浩德电子有限公司

Shenzhen Fahold Electronics Co.,Ltd.

SPECIFICATION

F2-100D waterproof power supply

Product Name: F2-100D-XX

Summarize: 100W LED Driver

Version: A0

Release date: 2026-03-13

Add.:Floor 2,4,5, 6 Building C, Starlight Industrial Park, NO. 4, Shihuan Road,Shilong Community, Shiyan Town, Bao'an District, Shenzhen, China.

FEATURES

- Efficiency up to 91.5%;
- 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≤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

F2-100 series is 100W 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[1]	Max. Power (W)	Working mode[2]	V.out (Vdc)	I.out Adjustable range(A)	I.out Full Power range(A)	Default Output Current (A/Vdc)	Typ. Efficiency[3]		Typ. PF	
							120Vac	230Vac	120Vac	230Vac
F2*-100D*-054	100	C.C	27-54	0.14-2.8	1.85-2.8	1.85	87.4%	89.4%	0.99	0.97
F2*-100D*-143	100	C.C	60-143	0.056-1.5	0.7-1.5	0.7	89.3%	90.5%	0.99	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:120/230Vac, full load, 25℃.

FUNCTION SELECTION TABLE

Model	DALI2	Class I	Class II	NFC	24VAUX.	D4I
F2-100D-XX	√	√				
F2-100DF-XX	√	√		√		
F2B-100D-XX	√		√			
F2B-100DF-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.)	-	-	1.25A	100Vac, 100% load
Standby Power Consumption	-	-	0.5W	@230Vac Dimming shutdown
Inrush Current	-	-	75A	230Vac, 25℃ cold start
Power Factor	0.9	-	-	100-277Vac,70-100% load
	0.97	-	-	230Vac,100% load
Total Harmonic Distortion	-	10%	15%	230Vac,100% load
	-	-	20%	100-277Vac,70-100% load

■ OUTPUT CHARACTERISTICS

Parameter	Min.	Typ.	Max.	Remark	
Current Accuracy	-5%loset	-	+5%loset	100% load	
Efficiency(Typ.)	86%	87.4%	-	120Vac&100% load	F2*-100D*-054
	88%	89.4%	-	230Vac&100% load	
	89%	90.5%	-	277Vac&100% load	
	87%	89.3%	-	120Vac&100% load	F2*-100D*-143
	89%	90.5%	-	230Vac&100% load	
	90.5%	91.5%	-	277Vac&100% load	
Output Voltage	27V	-	54V	F2*-100D*-054	
	60V	-	143V	F2*-100D*-143	
No Load Output Voltage	-	-	60Vdc	F2*-100D*-054	
	-	-	160Vdc	F2*-100D*-143	
Ripple Current	-	5%	10%	100% load，20 MHz BW	
Line Regulation	-3%	-	+3%		
Load Regulation	-3%	-	+3%		
Power limit	95W	100W	105W		
Turn-On Delay Time	-	-	1.0S	@230Vac,Compliance DALI-2 test.	
Current Output Range F2*-100D*-054 F2*-100D*-143	0.14A 0.056A	-	2.8A 1.5A	The range of nominal current can be adjusted by controller programming; 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℃	-	+50℃	Ta
Safety enclosure temperature (Max.)	-40℃	-	+90℃	Tc
Humidity	10%	-	90%	RH, (not condensed)
Storage Temperature	-40℃	-	+75℃	
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℃, 80% load. See Life Cycle and Tc Curves for details
MTBF	218000 Hours			25 ℃ ,230Vac, 80% load. (MIL-HDBK-217F)
Warranty	5 年			Tc:75℃

NOTES

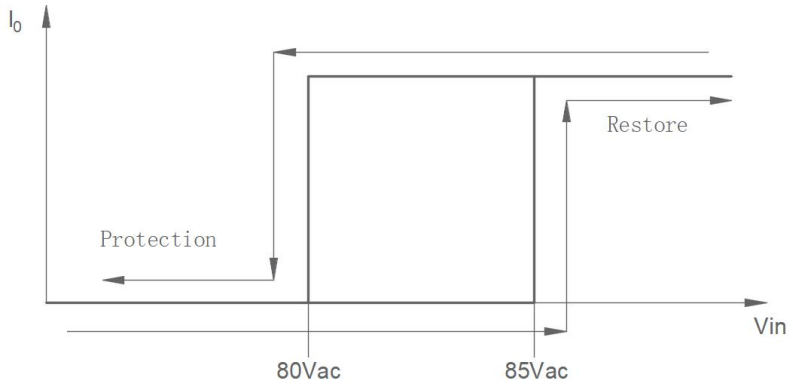
1. It is recommended that customers install over-voltage protection and surge protection devices in the power supply circuit of lamps to ensure the safety of electricity use.
2. Please use a special programmer to adjust the current of the power supply, and program and write through the dimming light.
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℃, humidity 50%, 100% load, and input voltage 230Vac.

■ PROTECTIVE FUNCTION

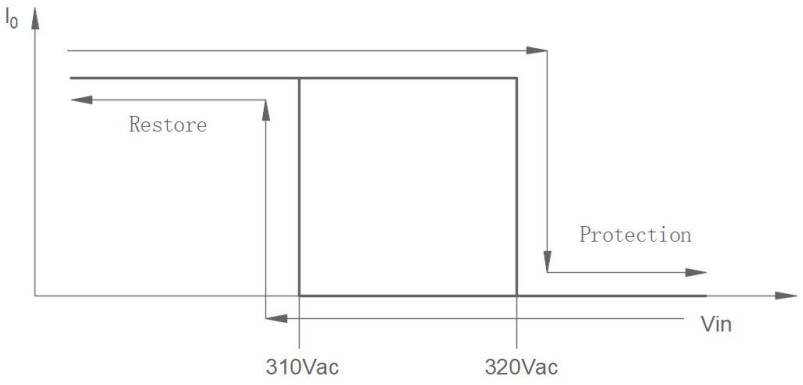
Parameter		Min.	Typ.	Max.	Remark
Input Under Voltage Protection	Protection Voltage	70Vac	80Vac	90Vac	When the input voltage is lower than the protection voltage, the output is turned off.
	Restore Voltage	75Vac	85Vac	95Vac	Self-recovery mode. When the input voltage is higher than the recovery voltage, 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°C	95°C	105°C	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 FCC Part15 Subpart B;ANSI C63.4:2014	Class B
Radiation Emission	EN 55015：2013+A1:2015 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)

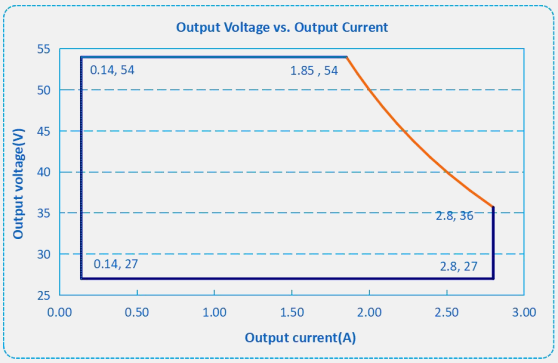
■ SAFETY KEY TEST ITEMS

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	≥10MΩ			Input-Output, Test Voltage:500Vdc
Ground Resistance	≤0.1Ω			25A/1min
Leakage Current	≤0.75mA			277Vac

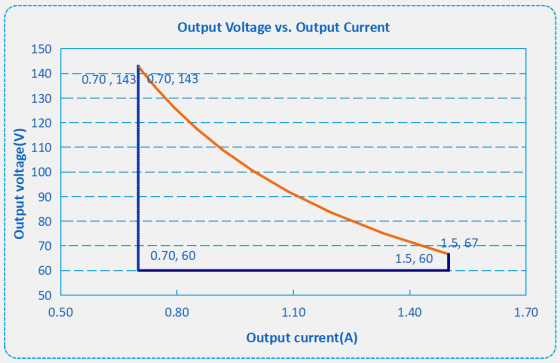
NOTES:

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

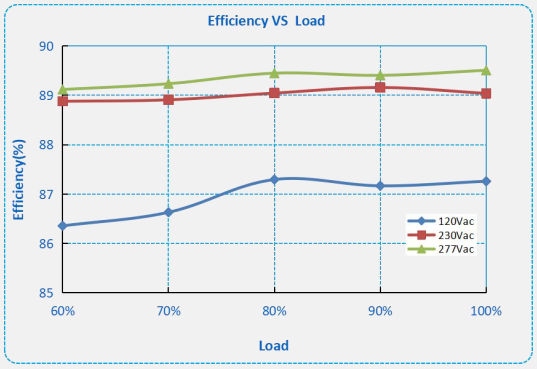


F2-100D-054

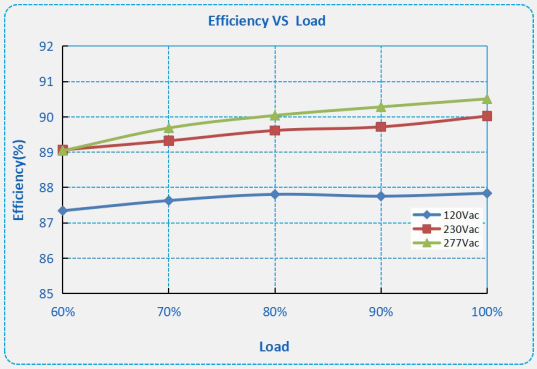


F2-100D-143

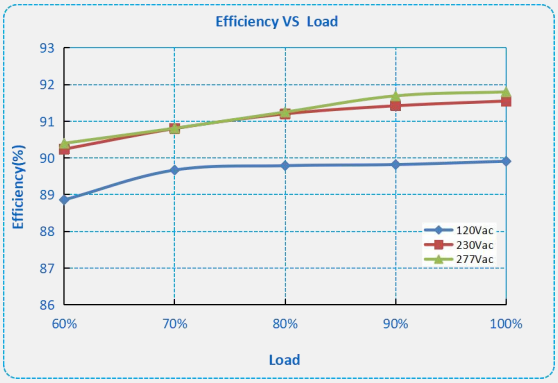
EFFICIENCY VS. LOAD



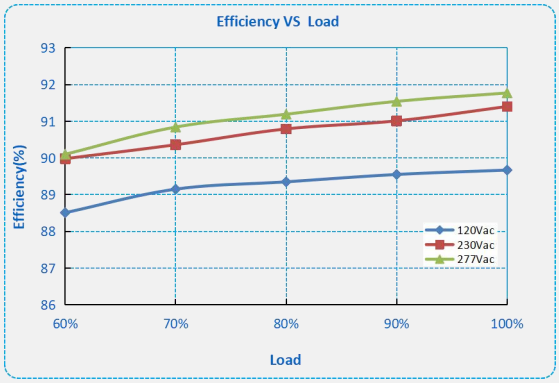
F2-100D-054 (I_O=2.8A)



F2-100D-054 (I_O=1.85A)

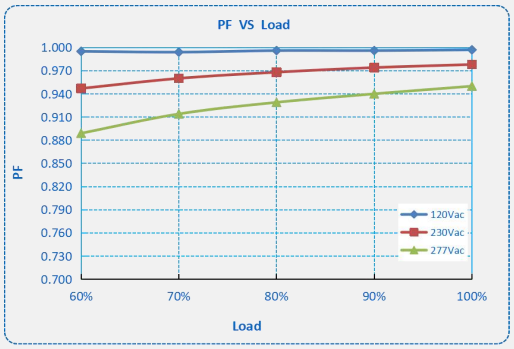


F2-100D-143 (I_O=1.5A)



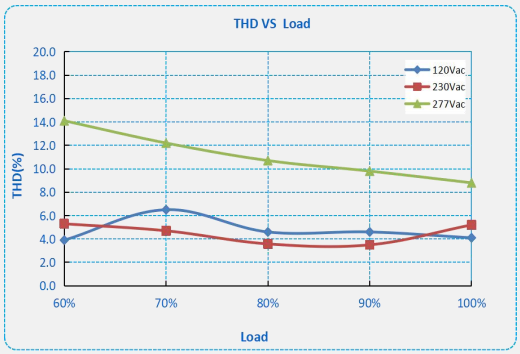
F2-100D-143 (I_O=0.7A)

PF VS LOAD CURVE



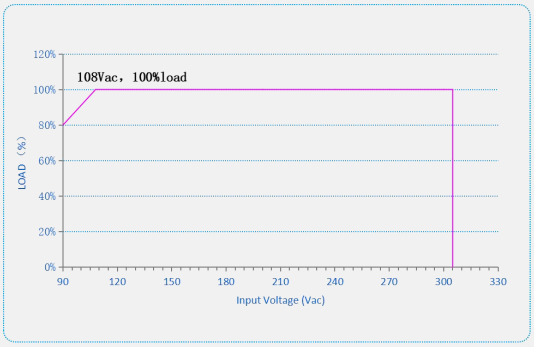
F2-100D Series

THD CURVE

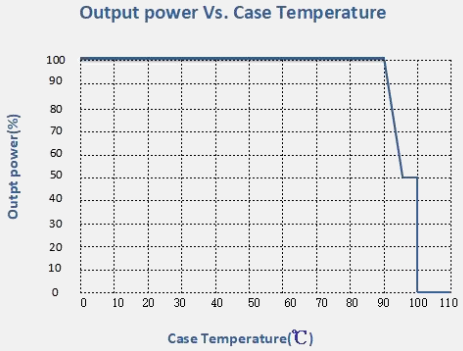


F2-100D Series

DERATING CURVE

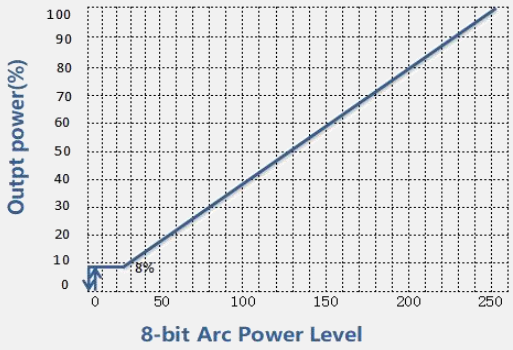


Output Power Vs. Input Voltage

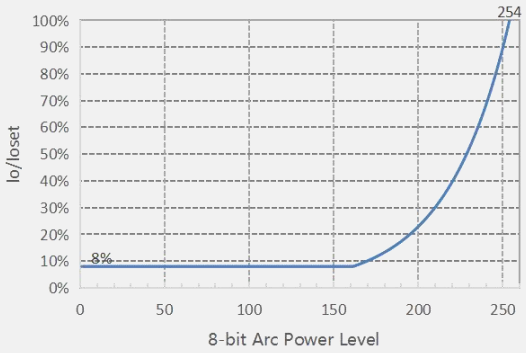


Output Power Vs. T case

DIMMING CURVE

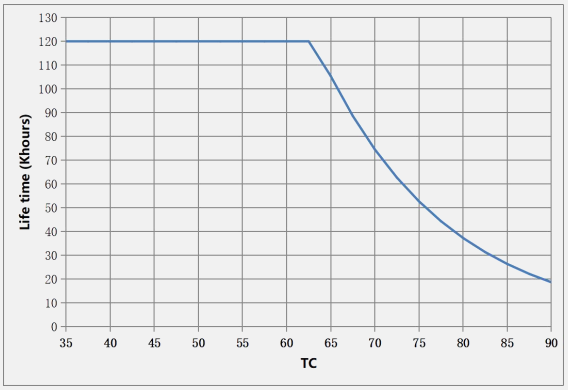


Linear Dimming Curve



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)

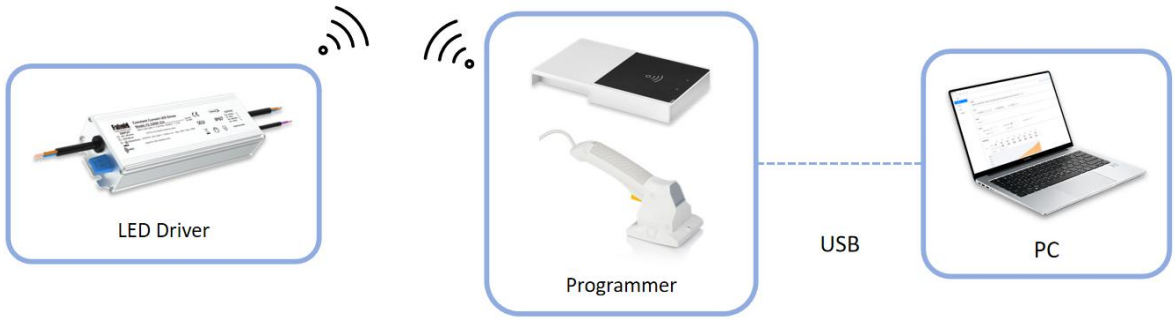
Time dimming control includes 3 kinds of modes, they are Self Adapting-Midnight, Self Adapting- Percentage and Traditional Timer.

- 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)

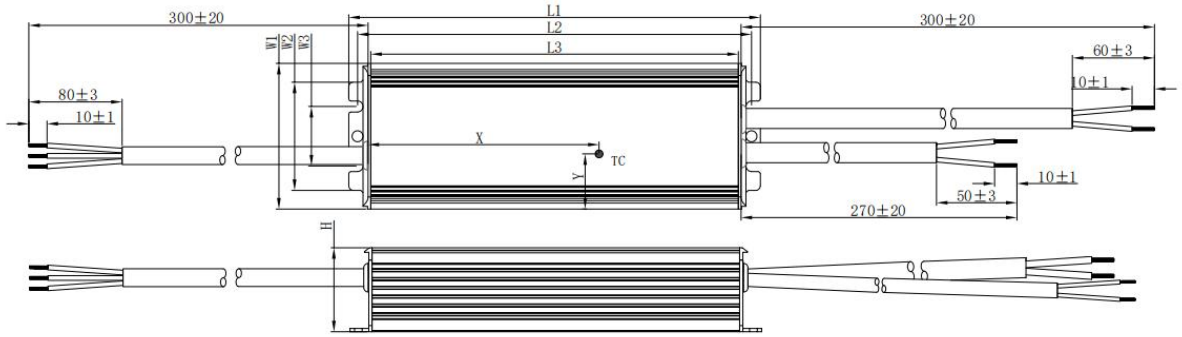
- Output Lumen Compensation(CLO) may be used to maintain constant light output over the life of the LEDs by driving them at a reduced current when new, then gradually increasing the drive current over time to counteract LED lumen degradation.

■ Programming connection schematic diagram

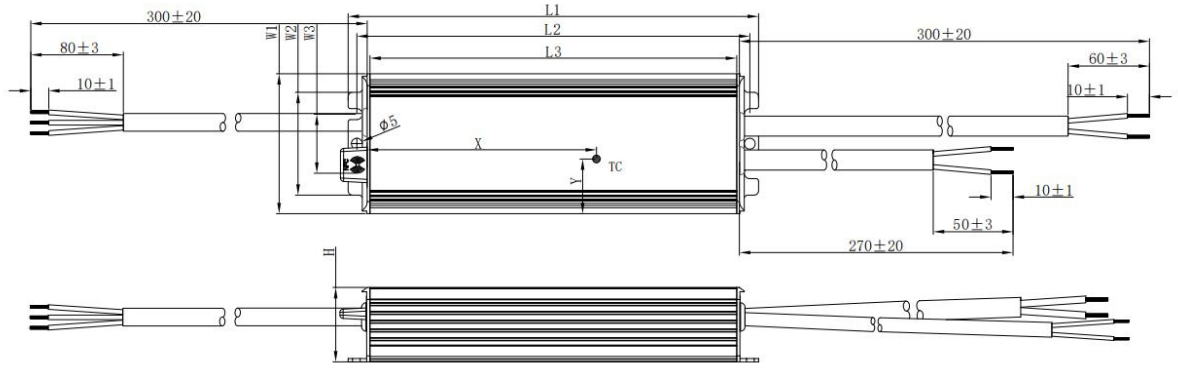


■ Mechanical Outline(unit: mm,unmarked tolerance±1mm)

● Online programming



With NFC



Model	L1	L2	L3	W1	W2	W3	H	TC X	TC Y
F2-100D	142	134	121.5	64	47	27	34	76	21

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^2 300/500V,L=300±20mm Brown: L, Blue: N, Yellow/green : PE	
Input Wires	H05RN-F 2x1.0mm^2 300/500V, L=300±20mm, Brown: L, Blue: N	Ⅱ Models
	H05RN-F 3x1.0mm^2 300/500V, L=300±20mm, Brown: L, Blue: N, Black : PE	
Output Wires	H05RN-F 2*1.0mm 300/500V, L=270±20mmBrown: LED+, Blue: LED -	
	SJTW 2*18AWG 300V,L=270±20mm, Red: LED+, Black: LED-.	
	SJOW 2*17AWG/2x1.0mm^2 300/500V, 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: 580g±100g
4. Net weight of the whole box:19.2kg±10%

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 ≤100mΩ.
5. Please insulate and waterproof the dimming cable when it is not in use.
6. The voltage-withstand of LED chip and Aluminum PCB >3KV.
7. Safety space between Aluminum PCB and LED coppers >5mm.
8. The safety distance between LED+ and LED- on Aluminum PCB>1.8mm.
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.

REVISION HISTORY

Version	Description of Change		Changed Date	Notes
	Before	Now		
A0	Release	---	2026/03/13	