LED Driver
1200FGH420Cxy-zzz

V0.2

2026/5/27

Powerland Signatures						
Prepared	Checked			Approved	Marketing	CPO
	Mechanical Engineer	Safety Engineer	R&D Manager			

Please return us one copy of the document with your approval signature.

请客户确认签字后回传我司此规格承认书。

Powerland Technology Inc.
南京博兰得电子科技有限公司

Building 9, No. 1 Zidan Rd., Qinhuai Dist., Nanjing, China
南京市秦淮区紫丹路设计产业园 9 号楼
Email: sales@powerlandtech.com Phone: +86-25-85582306

1200FGH420C 1200W AC/DC Constant Current LED Driver

Features

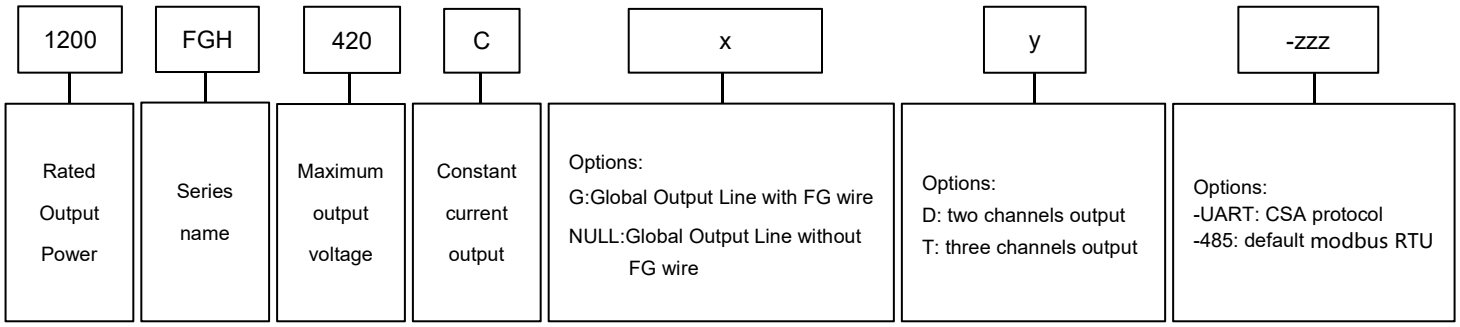
- Multi-channels constant current output
- High efficiency: 96% typical @400 VAC, full load
- High power factor: 0.95 typical. @ 400 VAC, full load
- Digital Dimming(UART Based Communication Protocol or RS485 Protocol) optional
- With Lightning Protection & all-round protections (OVP, OCP,SCP,OTP)
- IP65

Description

This specification describes the performance characteristics of a 1200W non-isolated and isolated multi-output LED drive power supply.

The output current of this series are programmable.

Model Name Definition



Specifications

Part Number	Channels	PO_MAX (W)	IO_RANGE @ CC (A)	VO_RANGE (V)	Typical η (%) @ 400VAC
1200FGH420CGD	1	1000	1.6-4.5	200-420	96
	2	100	0.28-0.9	60-150	
1200FGH420CGT	1	1000	1.6-4.5	200-420	
	2,3	100	0.28-0.9	60-150	

Note:1.CH1 channel is a non-isolated channel, CH2 and CH3 channels are isolated channels.

2.These protocols of different communication interfaces can be obtained from sales.

3.For Specific product model, please refer to ordering information.

Table of Contents

1.Input Specifications

	Parameter	Min.	Typ.	Max.	Unit	Notes
V_{IN_AC}	Rated Input AC Voltage	347	-	400	VAC	
V_{IN_RANGE}	Input AC Voltage Range	312	-	480	VAC	
F_{LINE}	Input Frequency	47	50/60	63	Hz	
I_{LKG}	Leakage Current	-	-	0.75	mA	At 400VAC/ 50Hz input , grounding effectively
I_{IN_AC}	Input AC Current	-	-	3.4	A	Measured at 25°C, full load and 400VAC input.
I_{PK_INRUSH}	Inrush Peak Current	-	-	35	A	At 400VAC input, 25°C cold start. See Inrush Current Waveform for the details.
PF	Power Factor	0.95	-	-		At 400VAC, 80%-100% load, 25°C and 50Hz
THD	Total Harmonic	-	-	20	%	
η	Efficiency	95	96	-	%	Measured at 400VAC input、100% load and steady-state temperature in 25°C ambient

2.Output Specifications

	Parameter	Min.	Typ.	Max.	Unit	Notes
I_{O_ACCU}	Output Current Accuracy relative to Io set	-5	-	5	%	At 25°C and full load condition.Can contact sales ask for better current tolerance.
I_{O_RIPPLE}	Total Output Current Ripple (pk-pk) relative to Io max	-	-	10	%	At 25°C and full load condition, 8kHz BW
$I_{O\_OVERSHOOT}$	Startup Overshoot Current relative to Io max	-	-	10	%	At 25°C and full load condition, 8kHz BW
V_{O_OCV}	No Load Output Voltage	-	-	500	V	Measured at RMS value
V_{O_LINE}	Line Regulation	-	-	±3	%	Measured at 25°C and full load
V_{O_LOAD}	Load Regulation	-	-	±3.5	%	
T_{ON_DELAY}	Turn-on Delay Time	-	-	1	s	Measured 400VAC input to 90% output current
I_{O_TC}	Temperature Coefficient of Io set	-0.03	-	0.03	%/°C	Case temperature = 0°C ~Tc max
V_{O_AUX}	12V Auxiliary Output Voltage	11	12	15	V	
I_{O_AUX}	12V Auxiliary Output Current	0	-	500	mA	Return terminal is “Dim−“
T_{OTP}	Over Temperature Protection Threshold	90	95	100	°C	Output current will drop or shut down.
SCP	Short Circuit Protection Threshold					Shut down

3.General Specifications

	Parameter	Min.	Typ.	Max.	Unit	Notes
$P_{STANDBY}$	Standby power	-	-	3	W	Measured at 400VAC/50Hz; Dimming off
T_{MTBF}	MTBF	234,000	-	-	Hours	Measured at 400VAC input, 80% load and 25°C ambient temperature (MIL-HDBK-217F)
$T_{LIFETIMELY}$	Lifetime	50,000	-	-	Hours	Measured at 400 VAC input, 100% load and 75°C case temperature; See Lifetime curve for the details
T_C	Operating Case Temperature Tc	-40	-	90	°C	
T_A	Operating Ambient Temperature Ta	-40	-	50	°C	
T_{STG}	Storage Temperature	-40	-	85	°C	Humidity: 5%RH to 90%RH
	IP Grade	IP65				
	Dimensions L × W × H	12.95×4.52×2.18			inch	
		329×114.8×55.4			mm	
	Net Weight/pcs	-	3.4	-	kg	
	Warranty	-	5	-	Years	

4.Dimming Specifications

Please contact us for UART and RS485 dimming protocol.

5.Isolation

Isolation	AC Input	DC Output (CH1)	DC Output (CH2/CH3)	Dimming (SELV)	Housing
AC Input	/	No isolation	Double isolation	Double isolation	Basic
DC Output(CH1)	No isolation	/	Reinforced isolation	Double isolation	Basic
DC Output(CH2/CH3)	Double isolation	Reinforced isolation	/	Double isolation	Basic
Dimming (SELV)	Double isolation	Double isolation	Double isolation	/	Basic
Housing	Basic	Basic	Basic	Basic	/

6.Safety & EMC Compliance

Safety Category	Standard
CE	EN 61347-1, EN 61347-2-13
Dielectric Strength(Hi-pot)	Primary to Secondary: 4000VAC / 10mA Max / 60seconds (3seconds for production)
	Primary to Earth: 2000VAC / 10mA max./60 seconds (3 seconds for production)
	Dimming to Earth:500VAC 10mA max./60 seconds (3 seconds for production)
Insulation Resistance	50Mohm min.@ primary to secondary add 500Vdc test voltage
Grounded Resistance	0.1Ω max. @ 25A, 1 minute
EMI Standards	Notes
EN55015	Class B

	This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired Operation.
EMS Standards	Notes
EN 61000-4-2	Electrostatic Discharge (ESD): 8 kV air discharge, 4 kV contact discharge, criteria B
EN 61000-4-3	Radio-Frequency Electromagnetic Field Susceptibility Test-RS, criteria A
EN 61000-4-4	Electrical Fast Transient / Burst-EFT: level 3, criteria B
EN 61000-4-5	Surge Immunity Test: AC Power Line: line to line 4 kV, line to earth 6 kV, criteria B
EN 61000-4-6	Conducted Radio Frequency Disturbances Test-CS, criteria A
EN 61000-4-8	Power Frequency Magnetic Field Test, criteria A
EN 61000-4-11	Voltage Dips, criteria B
EN 61547	Electromagnetic Immunity Requirements Applies To Lighting Equipment

Note1:This LED driver meets the EMI specifications above, but EMI performance of a luminaire that contains it depends also on the other devices connected to the driver and on the fixture itself.

7.Performance Curve

7.1.Inrush Current Curve

TBD

Figure 1.Inrush Current @ full load and cold start

Vin(VAC)	F_{LINE} (Hz)	I_{PK_INRUSH} (A)	$T_{DURATION}$(μs)
400	50		

7.2.Derating Curve

TBD

Figure 2.Input Voltage Derating Curve

7.3.Lifetime Curve

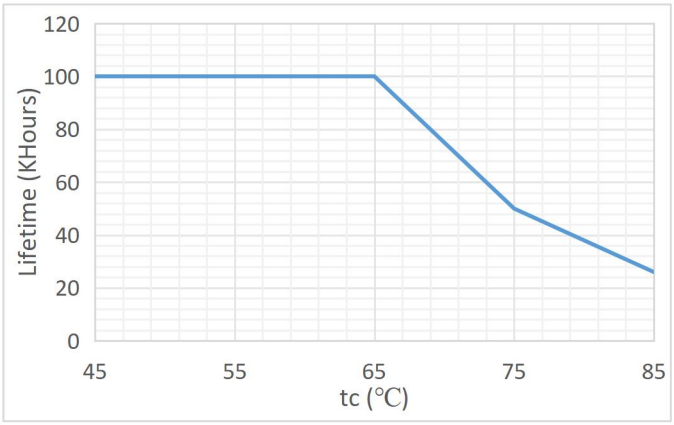


Figure 3.Life vs Case Temperature

7.4.Operation Range Curve

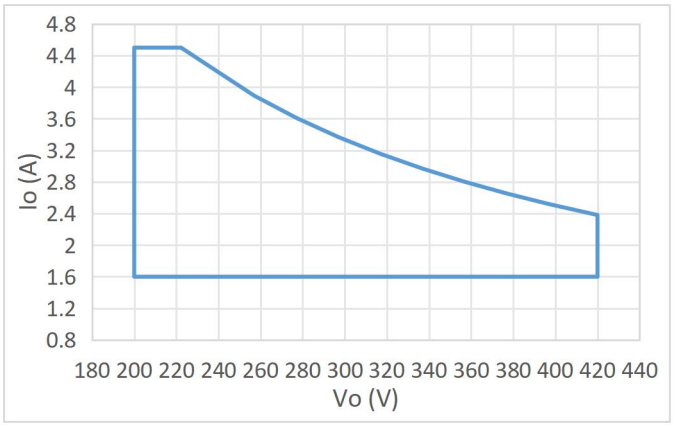


Figure 4.I/V Operating Area for CH1

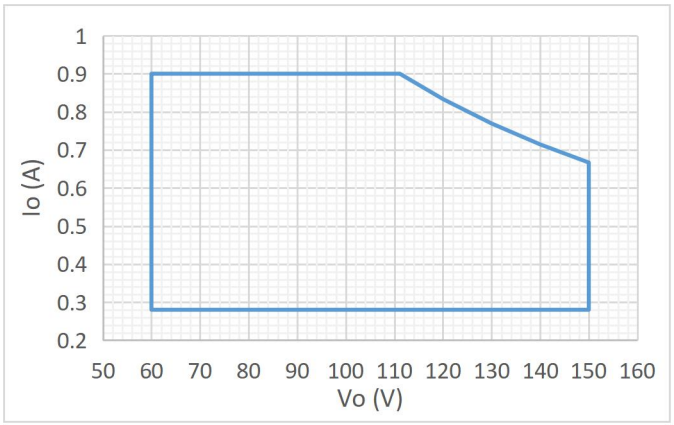


Figure 5.I/V Operating Area for CH2/CH3

7.5.General Performance Curve

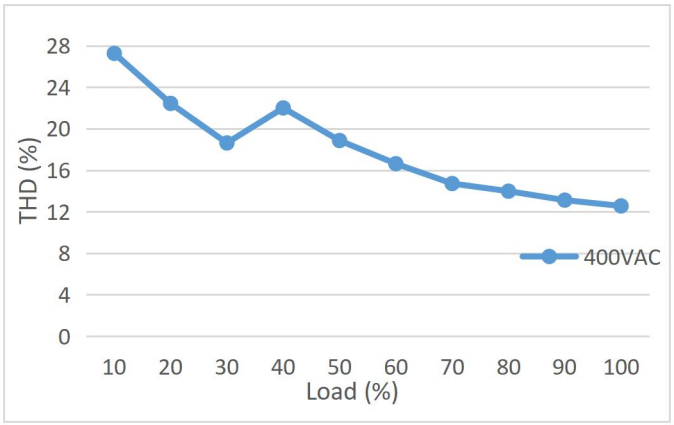


Figure 6.Total Harmonics vs Different Loads

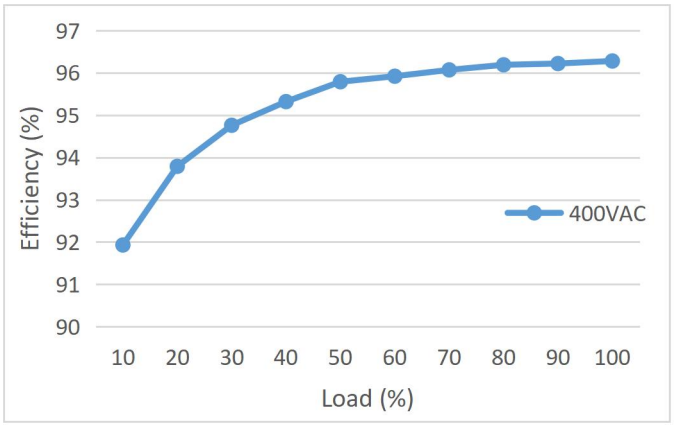


Figure 7.Efficiency vs Different Loads

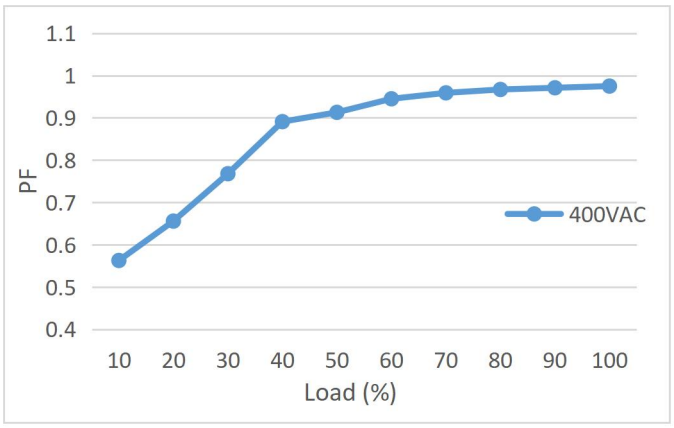
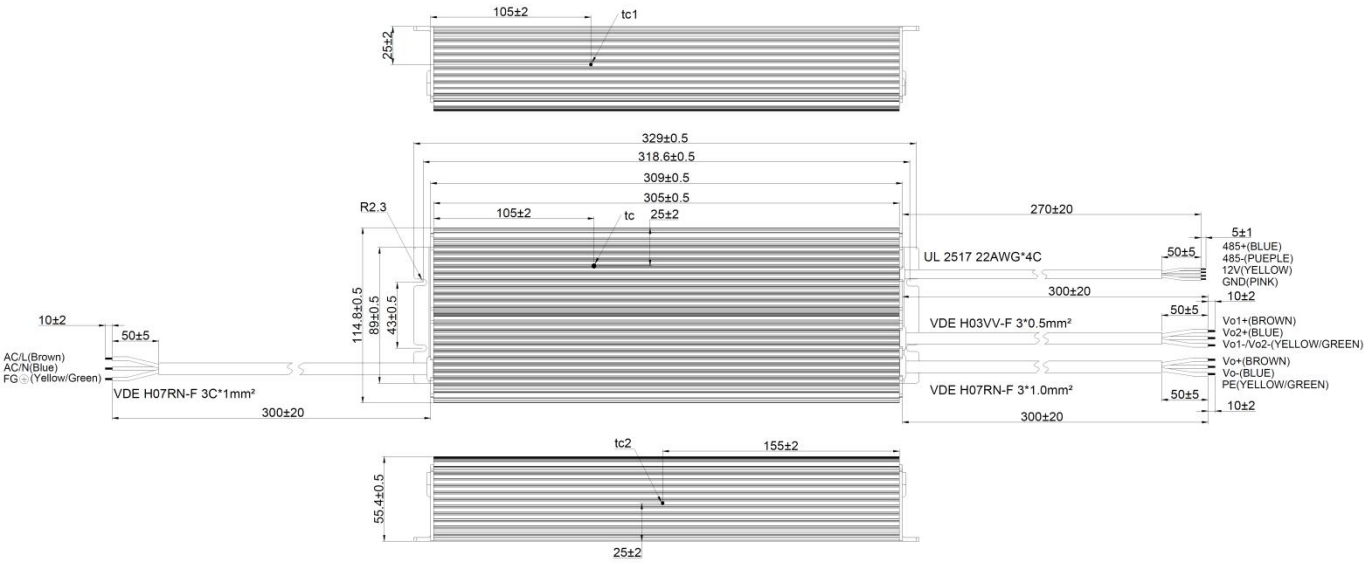


Figure 8.Power Factor vs Different Loads

8.Mechanical Specification

Take 1200FGH420CGT-485 as a example:



Unit:mm

Figure 9. Mechanical Drawing

Note2: This diagram uses a 3-output channel configuration as an example—each reduction in output channels decreases one wire core in the auxiliary output.

Model	Dimming wire
-UART	UL2517，3*22AWG，OD=5.2mm，DIM+(PURPLE)/12V(YELLOW)/DIM-(PINK)
-485	UL2517，4*22AWG，OD=5.2mm，485+(BLUE)/485-(PURPLE)/12V(YELLOW)/GND(PINK)

9.Ordering information

Part Number	Rated Input AC Voltage (VAC)	Channels output	Output wire model	Dimming
1200FGH420CGD-485	347-400	2	Global Output Line with FG wire	485
1200FGH420CGT-485	347-400	3	Global Output Line with FG wire	485
1200FGH420CGD-UART	347-400	2	Global Output Line with FG wire	UART
1200FGH420CGT-UART	347-400	3	Global Output Line with FG wire	UART
1200FGH420CD-485	347-400	2	Global Output Line without FG wire	485
1200FGH420CT-485	347-400	3	Global Output Line without FG wire	485
1200FGH420CD-UART	347-400	2	Global Output Line without FG wire	UART
1200FGH420CT-UART	347-400	3	Global Output Line without FG wire	UART

10.Revision History

Change Date	Rev.	Description of Change		
		Item	From	To
2025/11/24	V0.0			
2026/1/15	V0.1	Modify:format		
		No Load Output Voltage	Max:550V	Max:500V(Measured at RMS value)
		Dielectric Strength(Hi-pot)	Primary to Secondary: 4200VAC / 10mA Max / 60seconds (3seconds for production)	Primary to Secondary: 4000VAC / 10mA Max / 60seconds (3seconds for production)
			Primary to Earth: 2100VAC / 10mA max./60 seconds (3 seconds for production)	Primary to Earth: 2000VAC / 10mA max./60 seconds (3 seconds for production)
		Lifetime	100000Hours(Measured at 400VAC input, 100%Load and 25°C Ta)	50000Hours(Measured at 400 VAC input, 100% load and 75°C case temperature; See Lifetime curve for the details)
		Modify:Isolation		
		Add:Dimming Specifications		
		Modify:Lifetime Curve		
		Add:Operation Range Curve		
2026/5/27	V0.2	Part Number	1200FGH420C-xC-yyy	1200FGH420Cxy-zzz