

Product Specifications

150-watt AC Power Supply for XGS-6350-24X4C (100V-240VAC)

XGS-PWR150-AC

Version 1.0

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Change History:

Revision:	Date:	Author:	Change List
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Author	Simon Yeh	Editor:	Mark Kao
Reviewed by:	Jonas Yang	Approved by:	Kent Kang

1. Introduction

➤ Image



➤ Overview

XGS-PWR150-AC is a mini-watt AC/DC power supply with 12V DC/12.5A single output. It adopts the latest circuit design, obtaining compact structure, reliable performance and high PF. The power supply has the stable performance, high output efficiency and wide input voltage range. The power is characterized with protections for low input voltage, output short circuit, over current and over voltage, backup for parallel operation and hot plug, equipped with a cooling fan. **XGS-PWR150-AC** is designed in accordance with Safety Certification, meeting the requirements of Information Technology Equipment Security.

2. Technical Index

➤ Environment Requirements

- Operating temperature: -10 ~ +45°C
- Storage temperature: -40 ~ +70°C
- Humidity: ≤90%
- Altitude: ≤3000m
- Atmospheric pressure: 70 ~ 106KPa
- Heat dissipation: Fan

➤ Input Characteristic

S/N	Item	Unit	Technical Index			Note
			Minimum	Typical	Maximum	
1	Rated input voltage	Vac		220		
	Input range	Vac	90	240	264	
2	Input frequency range	Hz	47	50	63	
3	Max input current	A			3	90V AC input, full loading
4	Inrush starting current	A			100	240V AC input, 25°C cooling effect
5	Output efficiency	%	76			Rated input, rated loading
6	PF value		0.9			Rated input, rated loading
7	Starting delay	S			3	Rated input, rated loading
8	No-load power consumption	W			10	

➤ Output Electrical Characteristics

- Basic output characteristics

S/N	Item	Unit	Technical Index			Note
			Minimum	Typical	Maximum	
1	Rated output voltage	VDC		12		
2	Output voltage	VDC	12.2		12.3	
3	No-load voltage	VDC	11.4		12.6	

4	Output current	A	0		12.5	
5	Load regulation	%			±5	
6	Source regulation	%			±5	
7	Ripple peak	mV			150	Ripple test must be conducted in rated input/output with a 0.1uF capacitor and a 10uF/50V capacitor over the output terminal. Meanwhile, the bandwidth of the oscilloscope should be 20MHz.
8	Dynamic response	Overshoot amplitude	%		±10	30% ~ 90% ~ 30% load change
		Recovery time	uS		400	
9	Power on-off overshoot amplitude	%Vo			±5	
10	Output rise time	mS			100	Rated input, rated loading
11	Output remain time	mS	10			Rated input, rated loading
12	Output capacitive load	uF	5000			

➤ Protection

Item	Unit	Minimum	Typical	Maximum	Recover
Output current limited protection	A	14.5	-	22.5	Hiccup mode, recover after the fault removed
Short-circuit protection	A				Hiccup mode, recover after the fault removed
Overvoltage protection	V			16	Hiccup mode, recover after the fault removed
Over-temperature protection	°C		85		Locked test of the fan; recover after the fault removed

➤ Safety Certification & Insulation Grade

Item	Grade	Standard (Testing condition)	
Insulation voltage	Input-Output	2000Vac	2000VDC /min /leak current≤10mA, no arc discharge, no electric discharge, no ignition Remove the discharge tube when testing

	Input-Ground	2000Vac	2000VDC /min /leak current \leq 10mA, no arc discharge, no electric discharge, no ignition	
	Output-Ground	500Vac	500VDC /min /leak current \leq 10mA, no arc discharge, no electric discharge, no ignition	
Insulation resistance	Input-Output	\geq 10M Ω	normal temperature/500VDC/ resistance \geq 10M Ω	Input-output insulation
	Input-Ground			
	Output-Ground			
Safety certification		EN60950,GB4943 standards		

➤ EMC

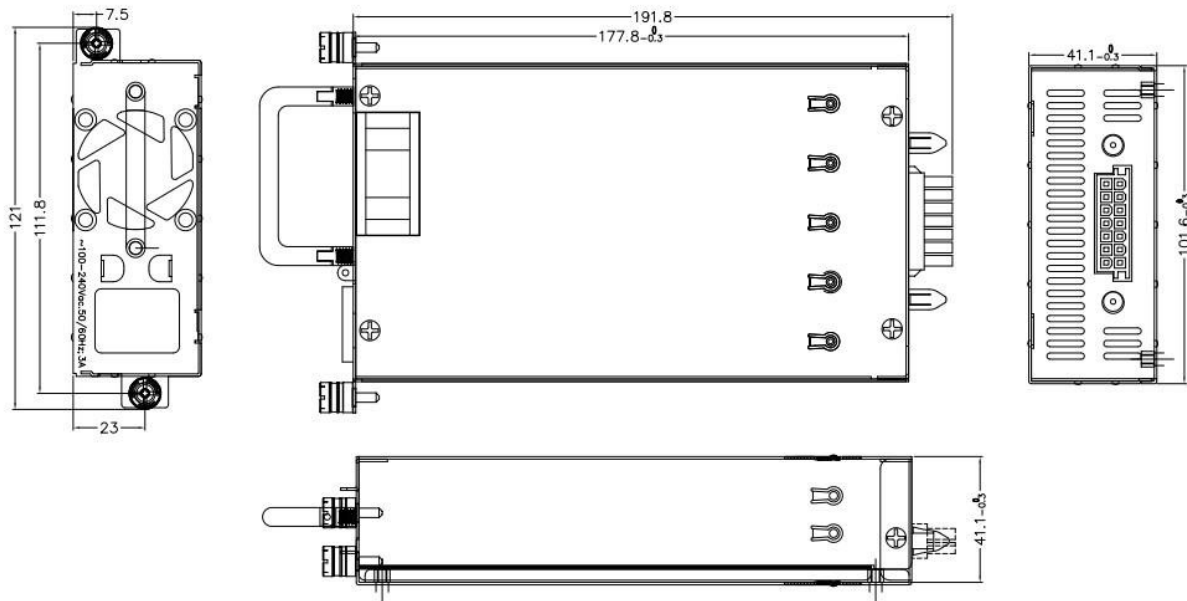
Item	Required index	Standard
Conducted Emission (CE)	Class A	EN55022 (Testing based on the whole system)
Radiated Emission (RE)	Class A	
Electrostatic Discharge (ESD)	Contact: \pm 6KV, Air: \pm 8KV Class A	IEC61000-4-2 Level 3
Electrical Fast Transient Burst (EFT)	\pm 2KV Class A	IEC61000-4-4 Level 3
Surge	Common mode: 2 KV, Difference mode: 1 KV Class A	IEC61000-4-5 Level 3
DIP	Respectively in 0°C, 45°C, 90°C, 135°C, 180°C, 225°C, 270°C, 315°C; Drop to 70%Un, 100mS, 10 times. Class A	IEC61000-4-11 Level 4
	Respectively in 0°C, 45°C, 90°C, 135°C, 180°C, 225°C, 270°C, 315°C; Drop to 0%Un, 10mS, 10 times. Class A	IEC61000-4-11 Level 4

➤ Other Characteristics

Item	Required Index	Performance
Audible noise	\leq 60dB	1 meter away from the fan
MTBF	30000H	25°C, rated input Full loading
Vibration	2 ~ 9Hz, 7.0mm, 9 ~ 200 Hz, 2.0g, 200 ~ 500 Hz ,1.5g, X,Y,Z/5 cycles	

Shock	Lasting for 11mS, peak acceleration 300m/S^2 , X, Y, Z , each for 20 times	
Heat dissipation	Built-in fan	
Hot plug	No ignition over the output terminal	
Failure isolation	The parallel power won't be affected when the power module fails.	
Parallel working	To supply hot (standby)	

3. Outline & Port Definition



Dimensions (W x D x H): 177.8 x 101.6 x 41.1 mm

➤ PIN over out connector

PIN	Function	Color
1	12V	WHITE
2	12V	WHITE
3	FAN MONITOR SIGNAL	When the fan works, Pin3 outputs a TTL 3.3V; when the fan breaks down, Pin3 outputs a TTL 0V.
4	GND	BLACK
5	GND	BLACK
6	PRESENT	BROWN
7	INPUT TYPE (AC/DC)	VIOLET
8	12V	WHITE
9	12V	WHITE
10	NC	
11	GND	BLACK
12	GND	BLACK
13	PG	GREY
14	REMOTE ON/OFF	ORANGE

➤ Monitoring, alarm & interface

S/N	Item	Characteristics

1	PG	PG: Normal: Output high level: 3.3V Fault: Output low resistance (<0.5V)
2	Fan signal	When the fan works, Pin3 outputs a TTL 3.3V when the fan breaks down, Pin3 outputs a low TTL (<0.5V)
3	REMOTE ON/OFF	Remote on/off: If the external low-level power works, it'll float, not working.
4	Detection (PRESENT)	The PRESENT connects with GND; when power is on, short circuit is provided.
5	INPUT TYPE (AC OR DC)	Identify the type of the module. If it is AC, the signal will be left unused; if it is DC, one 100Ω resistance will be internally connected to GND.

4. Notice

➤ Unpack

Open the case to check if there are damages caused by transportation or not. Keep the packing materials until all modules have been registered and checked.

➤ Rule

- No obstacles in the air channel of the modular unit.
- Any conductive parts must be kept in distance from metal parts, corresponding the certain safety standards.

➤ Protection

- Once the safety protection breaks down, stop the working device and refer to the maintenance regulations;
- Removing the power from the cold to the warm may cause danger. Please carefully follow the grounding requirements and have a qualified staff connect the device to the driving power.
- Cut off the power and let the capacitor discharge for 4 minutes.

➤ Cautions

- The power must be used in the above stated conditions;
- Don't modify the potentiometer by yourself;
- During the use, keep the power in ventilated air; when there is smoke and smell, shut down the power immediately.

5. Package, transportation & storage

➤ Package

The product name, model, logo, certificate of inspection, manufacturing date, etc. are stamped on the case. Product specifications and attachments are provided.

➤ Transportation

During transportation in vehicle, ship or aircraft, it should be covered for sunscreening. Carefully load/unload it.

➤ Storage

Put it in the case when stored in the warehouse at the temperature of $-40 \sim +80^{\circ}\text{C}$ and humidity of $\leq 90\%$. No harmful air, inflammable and explosive items or corrosive chemical products is permitted in the warehouse. Besides, strong machinery vibration, shock or strong magnetic field is prohibited. Elevate the package case at least 20cm high above the ground, keep it not less than 50cm from the walls, heat sources, and air windows. The storage period lasts 2 years, rechecking the device when it is expired.

6. Reference

- GB2423.1-89 basic testing for electric and electronic products, standard Ad.
- GB2423.2-89 basic testing for electric and electronic products, testing Bd.
- GB2423.9-89 basic testing for electric and electronic products, testing Cb.
- GB2423.10-95 basic testing for electric and electronic products, standard FC.
- GB/T13722.-92 requirements and testing of the mobile communication power technique
- ST2811.2-87 testing for general DC stabilized power
- GB4943.-1995 security of information technology equipment (including electric matters)
- ETS300019-1-1 storage
- ETS300019-1-2 transportation
- GB3873-83 conditions for general technique of communication product package
- Testing details of quality authentication for communicating and high-frequency switch power supplier to enter into network
- YD/T731-94 rectifier of communicating high-frequency switch
- XT— 005—95 General technical requirements for power system in Communication Bureau (Provisional)

7. List of Key Materials

S/N	Item	Spec/model	Site	Brand
1	electrolytic capacitor	150UF/450V	E1	RUBYCOM/MXG
2	electrolytic capacitor	2200UF/16V	E2,E3, E4	NIPPON/KZE
3	electrolytic capacitor	1000UF/16V	E5	NIPPON/KY
4	electrolytic capacitor	100UF/25V	E6	NIPPON/KY
5	electrolytic capacitor	220UF/25V	E7,E8,E9, E10	NIPPON/KY
6	MOS	FCP190N60E	Q2	FAIRCHI
7	MOS	FQP13N50C	Q8, Q9	FAIRCHI
8	Schottky Diode	RHRP860	D6	FAIRCHI
9	Schottky Diode	STPS2045CT	D25, D26	ST
10	Schottky Diode	STPS3045CT	D27	ST
14	PFC Integrated IC	2PCS01	U1	INFINEON
15	Integrated IC	NCP1396A	U2	ON
16	Integrated IC	TNY266	U3	PI
17	Transformer	/	T1	/
18	PFC	/	T2	/
20	Auxiliary supply transformer	/	T3	/