

48V DC Power Supply

MODEL: DC-48-12M-1



Overview

DC-48-12M-1 is a network communication power supply with an input voltage of -36~72Vdc, an output of 12Vdc/8.3A, and a total output power of 100W, using natural heat dissipation;

The overall efficiency is 84% @48Vdc;

Support N+1 backup and hot swap; can also be mixed with AC version (model: NP100-220WPF12M-1) power supply;

It has protection functions such as output overvoltage protection, output short circuit protection, output current limiting protection, and over temperature protection.

The power supply design is fine, the protection function is complete, the reliability is high, and it meets the safety certification requirements..



Specification

Working environment conditions

No.	Item	Specification	Quota	Remark
1	Temperature	-20-+55	°C	
2	Humidity	10-95	%	No condensation
3	Altitude	≤3000	m	More than 3,000 meters, the temperature is lowered by 1 ° C for every 200 meters of altitude.
4	Atmospheric pressure	70K-106K	Pa	
5	Heat dissipation	Natural heat dissipation	/	

Storage environment conditions

No.	Item	Specification	Quota	Remark						
1	Temperature	-40-+70	°C							
2	Humidity	10-95	%	No condensation						
3	Altitude	≤4000	m	More than 3,000 meters, the temperature is lowered by 1 ° C for every 200 meters of altitude.						

Testing environment conditions

No.	Item	Specification	Remark
1	Working high temperature Working low	+55℃ -20℃	The power supply properly works and the performance is stable.
3	temperature Storage high temperature	+70℃, Humidity 10%-95%	After 2 hours of normal temperature
4	Storage low temperature	-40°C, Humidity 10%-95%	recovery, the power supply works normally and the performance is stable.
5	Vibration	Sinusoidal vibration: 5~9Hz: amplitude 3.5mm; 9~200Hz: acceleration 10m/s2; 3 axial, sweeping vibration 5 times in each direction	After the vibration experiment is completed, the power supply is not damaged and can work normally.
6	Shock	Acceleration 250m/s2; pulse width 6ms; 3 axes 6 to 500 collisions	After the impact test is completed, the power supply is not damaged and can work normally.



Electrical input characteristics

NT.	T		Standard		Quarte		
No.	Item	Minimum	Typical	Maximum	Quota	Remark	
1	Rated input voltage	-40	-	-60	Vdc		
2	Input voltage range	-36	-	-72	Vdc		
3	Maximum input current	-	-	4.0	А	Vin=-36Vdc,	
4	Input surge current	-	-	10	А	Vin=-72Vdc, 25°C	
5	Efficiency	83	84	-	%	Vin=-48Vdc, 25°C	

Electrical output characteristics

		Standard					
No.	ltem		Minimum	Typical	Maximum	Quota	Remark
1	Output voltage range		11.76	12	12.24	Vdc	
2	Output current ra	inge	0	-	8.3	А	
3	Source adjustme	nt rate	-	-	0.5	%	
4	Hello Elena		-	-	2	%	
5	Output Power		-	-	100	W	
6	Output rise time		-	50	100	mS	
7	Boot delay		-	0.3	2	S	Vin=-36Vdc
8	Boot overshoot		-	-	5	%Vo	
0	Dynamic	∆t	-	-	1	mS	25%-50%-25%or50%-75%-50% load
9	response	$\triangle V$	-	-	± 5	%	change, current rise slope 0.5A/uS
10	Ripple and noise		-	-	50	mVp-p	Connect a 0.1uF+10uF capacitor in parallel with the measured end, and set the oscilloscope to 20MHz bandwidth.
11	Current imba	lance	-	-	± 5	%	Single power supply with 50%-100% load

Note: When the power supply is used in parallel, the load starting load current is 8.3A, and the load current after starting is equal to $N \times 8.3A$ (N-power supply number)

Protection Characteristics

No	Itom	Standard			Orrete	David 1	
INO.	nem	Minimum	Typical	Maximum	Quota	кетагк	
1	Output overvoltage	1.4	15	17	Vda	Output no load, can be automatically	
1	protection	14	15	17	vuc	restored	
2	Output overcurrent	165	17.5	19 5	Λ	Vin49Vda	
2	protection	10.5	0.0 17.0	18.5	А	v III40 v uc	



3	Input undervoltage protection	31	32	33	Vdc		
4	Input undervoltage recovery	34	35	36	Vdc	Output with half load test, protection point	
5	Input overvoltage protection	75	76	78	Vdc	and recovery hysteresis voltage $\ge 2V$	
6	Input overvoltage recovery	72	73	75	Vdc		
7	Output short circuit protection	The output and the fault	of the power s t can be resum	supply can be sho	ort-circuited peration.	for a long time, the power supply is not damaged,	
8	Input reverse connection protection	When the input positive and negative poles are reversed, the power supply is not damaged, and the fault can be self-recovery after troubleshooting.					

Logic function and signal output

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No.	Item	Standard	remark
1	Output indicator (OUT)	Use the panel indicator (Φ 3.0 green): The green light is on, indicating that the output is normal.	
2	Fault indicator (FAIL)	Use the panel indicator (Φ 3.0 red): the red light is on, indicating that the power supply is faulty.	
3	Alarm indicator (FAIL)	OC gate output, external 4.7K pull-up resistor, 5V power supply; optocoupler isolated output: low level (≤ 1 V)-normal, high level (≥ 4.5 V)-fault The FAIL fault signal status corresponds to the module FAIL indicator status.Power failures include: output under-voltage, over-voltage, fan failure, over-temperature, and so on.	
4	Power in-position detection (PRESENT)	When the power module is inserted into the power backplane, it is realized by a logic short connection between the connector pins (switch output); Switching quantity: in-position - low resistance; not in position - high resistance.	

Safety standard

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No.		Item	Standard (Testing Condition)	Remark
		Input to output	≤5mA@1min@1500Vdc	Before the test, the internal lightning protection
1	Anti-elect ricity	Input to GND	≤5mA@1min@1000Vdc	device of the power supply must be disconnected. The device bit number is: GAT1 (next to the PCB
	strength	Output to GND	≤5mA@1min@500Vdc	input connector); the power supply has no breakdown or arcing during the test.
0	Insulation	Input to output	≥5MΩ@500Vdc	Relative humidity is 90% at normal atmospheric
2	resistance	Input to GND	≥5MΩ@500Vdc	pressure



3 EMC Standard

UL60950、EN60950

EMC Standard

No.	Item	Standard (Testing Condition)	Remark
1	CE	EN55022, CLASSA, 6dB	
2	RE	EN55022, CLASSA, 6dB	
3	CS	LEVEL 2: 3V/m	IEC61000-4-6
4	RS	LEVEL 2: 3V/m	IEC61000-4-3
5	ESD	Touch: ±8KV; Air: ±8KV.	IEC61000-4-2
6	surge	LEVEL 4 Line-line 2KV; Line-Ground 4KV	EN61000-4-5
7	EFT	LEVEL 3: 2KV, Level B	IEC61000-4-4



Mechanical Standard

Dimensions

 $181.4 \times 85 \times 40$ (mm)

Weight

≤550g

Reliability

MTBF \geq 100, 000hours (25°C)

