产 品 承 认 书

Product Approval Sheet

产品型号 Product Model	D1602-F420D54.5+12I-I
版本 Version	S03
变更原因&内容 Reason change & Content	2022.10.15: Redefine the output wire length according to customer's requirement 2022.12.29：The voltage is updated to 54V 2023.01.13：Wire drawing update
最终判定 Final Approval	1、 该产品规格经双方确认无误，达成一致，自双方签字或盖章之日起生效； 2、 该产品的规格认定以此产品承认书为准；

供应商 Vender	客户 Customer
名称：东莞市北斗星电子科技有限公司 地址：广东省东莞市常平镇金美科技园 6 栋 电话： 0769-8189 8201 邮编： 523560 确认代表人（或被授权人）： Aniu	产品名称： 产品料号： 名称： 地址： 电话： 邮编： 确认代表人（或被授权人）：

■Feature ：

- ●Global AC input：90～264Vac
- ●Ultra wide working temperature range (-10℃～50℃)
- ●Ultra thin design，suitable for 1U case
- ●Built - in active PFC function, PF>0.96
- ●Protection functions: input undervoltage,/output overcurrent /overvoltage/ overload /short functions

★**Pictures for your reference**

■Specifications

Model note 1		D1602-F420D54.5+12I-I	
Output	Rated output voltage	V1	V2
		54V	12V
	Rated output current	7.0A	3A
	Rated output current range	0~7A	0～3.0A
	Rated output power	414W	
	Ripple note 2	<1% Vo	<150 mV
	Adjustable output range	/	/
	Voltage accuracy	±3.0%	±3.0%
	Start-up time	≤2S (230Vac input, Full load)	
	Hold-up time	≥10mS(230Vac input, Full load)	
	Overshoot	<5.0%	
	Dynamic characteristics	V1：10%-100%Load: 10%Vp-p 10%-50%Load: 5%Vp-p 50%-100%Load: 5%Vp-p	
Input	Voltage range	90Vac~264Vac	
	Rated voltage	100Vac~240Vac / 47Hz~63Hz	
	Starting voltage	90Vac	
	Efficiency (Type)	≥91% @ 220Vac	
	Input current (Max.)	6A/115VAC,3A/230VAC（Type）	
	Power factor	＞0.96/220Vac,Fullload	
	Start-up Inrush Current	<50A@264Vac Cold start	
Protection	Input undervoltage protection	65Vac~75Vac when the input voltage is lower than the undervoltage protection point, the power supply turns off the output 80Vac~90Vac after the input voltage rises above the undervoltage recovery point, the power supply can automatically return to normal operation	
	Output OPP	V1:105%~180%，Hiccup mode; V2:115%~220%，Hiccup mode; V2 does not output under V1 protection	
	Output OVP	V1:110%＜130% Downtime self-recovery;V2:110%<150%,Swing self-recovery;V2 does not output under V1 protection	
	Output OCP	V1:105%~180%,Downtime self-recovery; V2:115%~220%,Swing self-recovery;V2 does not output under V1 protection	
	Output short circuit	V1、V2:Long Time ,Downtime self-recovery；V2 does not output under V1 protection	
Work environment	Working Tem. & humidity note 3	-10℃~50℃; 10%~95%RH No condensing	
	Storage Tem. & humidity	-25℃~85℃; 10%~95%RH No condensing	
	Vibration	10 ~ 500Hz, 2G 10min./1cycle, period for60min. each along X,Y, Z axes	
	To attack	20G/11mS pulse ,3 times at each X,Y,Z axes	
	Altitude	5000m	
Safety & EMC	Safety standards	Design meets EN62368/EN60950 /GB4943 and other safety standards	
	Leakage current	P-S≤0.25mA P-PE≤3.5mA	
	Insulation strength	Primary-Secondary：3.0KVac/10mA/ 1min(Without shell test)，No flashover and breakdown	
		Primary-PE：1.5KVac/10mA/ 1min，No flashover and breakdown	
		SecondaryV2—PE：500Vac/10mA/ 1min，No flashover and breakdown	
		SecondaryV1-PE： 2250VDC/10mA test time 1min, No flashover and breakdown	

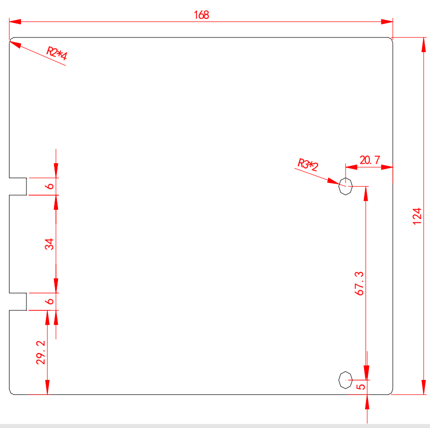
	Insulation impedance	Atroom temperature and humidity	Primary-Secondary: ≥50M ohms@500Vdc
			Primary-PE: ≥50M ohms@500Vdc
			Secondary-PE: ≥50M ohms@500Vdc
		Constant umid: temperature 40 ℃ + 2 ℃ ,humidity of 93% plus or minus 3%	Primary-Secondary: ≥2M ohms@500Vdc
			Primary-PE: ≥2M ohms@500Vdc
			Secondary-PE: ≥2M ohms@500Vdc
	Harmaonic current	EN61000-3-2,-3	
	EMI	EN55022 Class A	
		EN55022 Class A	
	EMS	ESD	Shell: the part that can be reached by hand during normal Operation:IEC61000-4-2:Contact discharge ± 6KV， air discharge ± 8KV，criterion A（Turn on test）
			Shell:the part that can be reached by hand during normal Operation:IEC61000-4-2:Contact discharge ± 8KV,air discharge ± 10KV,criterion A（Turn off test）
			Singal interface：IEC61000-4-2：Contact discharge±2KV criterion A（Turn off test）
		CS	IEC61000-4-6 CLASS A（system）
		RS	IEC61000-4-3 CLASS A（system）
		EFT	IEC61000-4-4 level4，CLASS A（system）
		Surge	IEC61000-4-5 differential mode 2KV，common mode 4KV criterionA（system）
		DIPS	IEC61000-411，falling to 70% U, lasting for 100ms, meets criterion A at 0°、45°、90°、135°、180°、225°、270°、315° phases；falling to 0%U，lasting for 10mS，meets criterion A at 0°、45°、90°、135°、180°、225°、270°、315° phases
Other	Dimensions (L*W*H)	168mm*124mm*34.5mm	
	Connection	Output：+54V——VH3.96-4P with #18 UL1007 220mm*4，2pcs pf black wires and blue +12V——VH3.96-4P with #20 UL1007 220mm*4，2pcs pf black wires and red	
	Cooling way	Forced air cooling ：Customer system with fan，customer supply 2PCS of fan for 8000RPM to draught air,for details about the air duct design refer to the location map.	
Reliability	MTBF	200,000Hrs AT 25℃, MIL-217 Method 2 Components Stress Method	
Notes	Note 1: If not specified, all parameters are tested at 15min at room temperature. Note 2: Ripple noise is measured using 12# twisted pair capacitors connected in parallel at 0.1uf and 10uF at 20MHz bandwidth. Note 3: For practical application, please refer to the derating curve, positioning diagram and installation instructions in detail.		

■ Product packaging and accessories description：

Packaging description :Carton + knife card + anti-static pearl cotton

Accessories description : Mylar + insulation pad need to stick the product welding surface

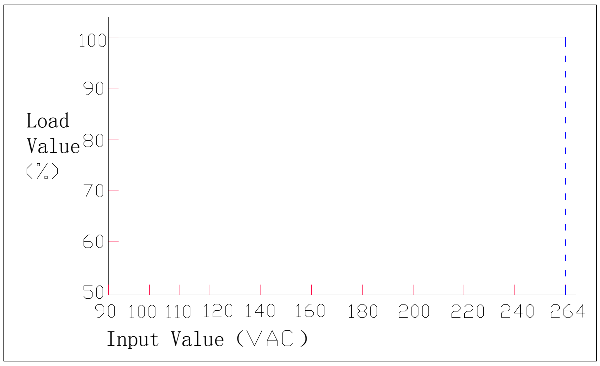
■ Product picture+mylarpicture

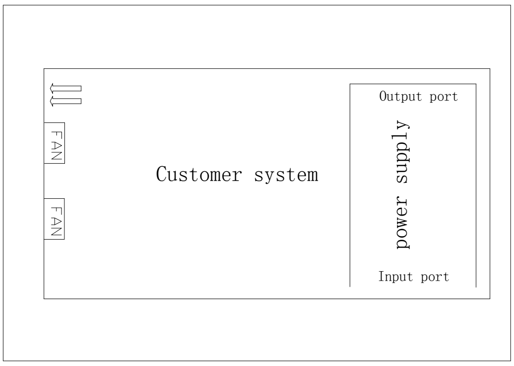


Product picture **Use mylar at the bottom of power supply**

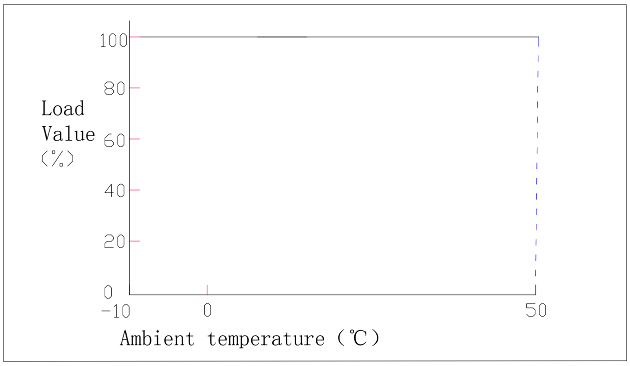
■ Derating Curve:

Relationship between output load drop and input voltage (refer the installation in right)

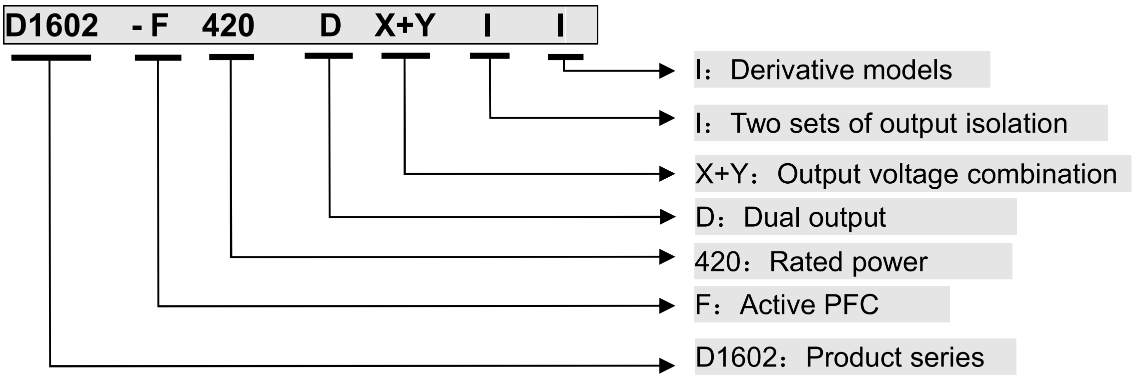




Relationship between output load drop and ambient temperature

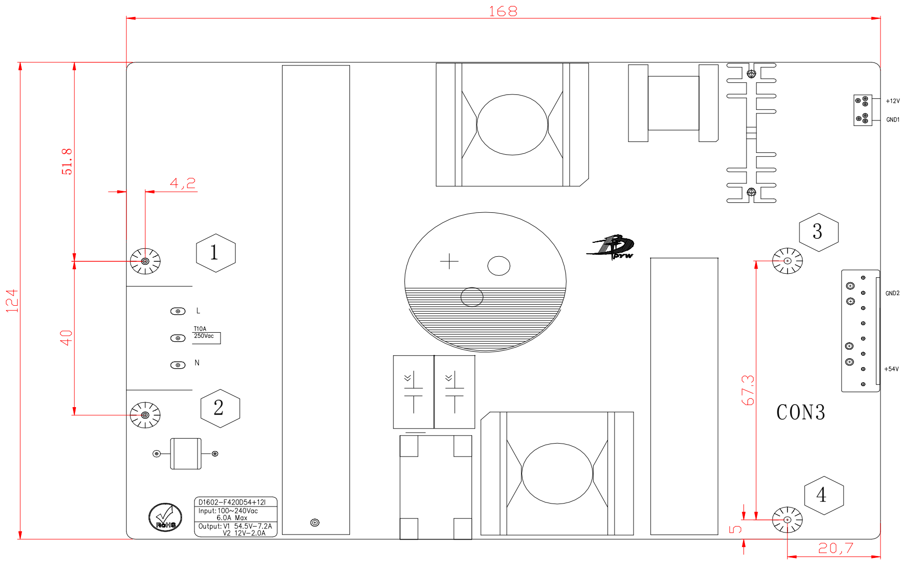


■ Specification code description：



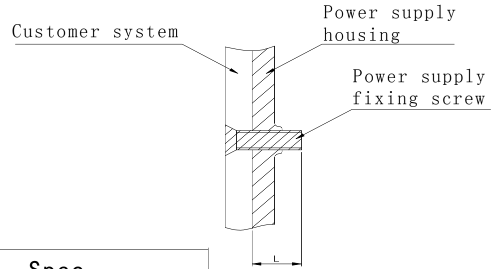
Mechanical:

Unit: mm



Installation position	Installation mode	Installation location number	Screw specifications	Lmax	Installation torque (max)
Frontal installation	Screw fixation	1 — 4	M3	3.5mm	6.5Kgf.cm (max)

Note: 1. To ensure safety, the length L of the screw into the power supply casing (as shown in the right picture) must meet the above table.



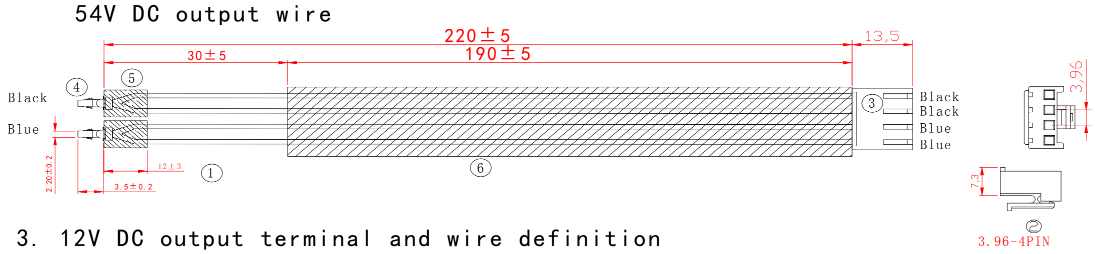
1. AC input terminal definition

	Tag number	Input	Spec
CON1	L(1)	AC (L)	VH3.96-5Pin Delete2、4Pin
	G(3)	PE GND	
	N(5)	AC (N)	

2. 54V DC output terminal definition

	Tag number	Terminal	Output polar	Spec
4P cable	1-2	3.96VH-4P	+54v Blue	VH-3.96-4P, UL1007 18AWG 220mm ,two blue, two black, heating shrinkable tubing
	3-4		GND Black	

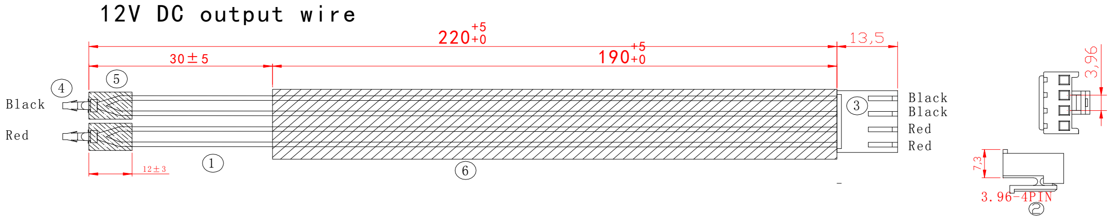
54V DC output wire



3. 12V DC output terminal and wire definition

	Tag number	Terminal Spec	Output polar	Spec
4P cable	1	3.96VH-4P	+12V	VH-3.96-4, UL1007 20AWG 220mm,two blue, two black, heating shrinkable tubing
	2		GND Black	

12V DC output wire



■ **Product installation, instructions for use：**

1、When the product is installed, please refer to "installation instructions", select the appropriate installation method.In order to ensure the safety of use and the reliable grounding of the application environment, the ground wire is used more than AWG18# yellow-green ground wire.

2、After installation, carefully check and proofread the connection way is correct: make sure that the input and output are not confused, AC and DC are not connected wrong, positive and negative pole is not connected back, the input voltage amplitude is correct, the output voltage is correctly connected to the electrical equipment, Prevent the occurrence of errors and avoid damaging power and user equipment.

3、Do not touch the power supply body when the power is turned on, avoid possible electric shock; do not touch the power source body for 3 minutes when the power is off, avoid possible burns; open board power supply does not recommend touching the solder surface of the power supply.

4、In order to improve the reliability of power supply application, install as far as possible in the part with good ventilation and heat dissipation condition, do not operate frequently on or off the machine in case of unnecessary, if the application condition exceeds the nominal parameters of the power supply, Please consult the technical staff of the original factory according to the actual application, and suggest the application according to the technical support of the original factory.

5、If the power supply is abnormal, do not disassemble and repair it, and contact our customer service staff as soon as possible.

■ **Packaging,transportation,storage：**

1、Pack：Packing box body with product name, model, manufacturer, manufacturer quality department inspection certificate name, manufacturing date, etc.

2、Transport：Product packaging is suitable for road, railway, aviation and navigation, etc. It should be loaded and unloaded in a civilized way.

3、Storage ：When the product is not in use, please do not open or remove the packing box, 20cm or above, away from the wall, heat source, window inlet 50cm or above.Storage environment temperature and relative humidity should conform to this specification, storage environment should not be corrosive gas, to avoid strong mechanical vibration, shock and strong magnetic field action. If the storage time is more than two years, it should be re tested before use.

Quoted standard ：

1、GB4943/EN60950/EN62368： Standard for Safety for Information Technology equipment (including Commercial Electronic equipment) powered by Power Grid or Battery.

2、GB2324： Basic environmental test code for electrical and electronic products

3、EN55022/ EN55024：Limits and measurement methods for radio interference characteristics of information technology equipment.

4、IEC61000-4： Electromagnetic compatibility (EMC) Test and Measurement Technology

5、IEC 61000-6-1 ： Standard and Measurement for electromagnetic immunity of products used in Residential, Commercial and Light Industrial environments.

6、IEC 61000-6-2 ： Standard and Measurement of electromagnetic immunity for products used in Industrial Environment.

7、GB 17625.1-1998： Harmonic current limits issued by low-voltage electrical and electronic equipment (input current per phase of equipment ≤ 16A).

8、GB/T 17626： Electromagnetic compatibility test and measurement technology.

9、GB/T14714： General specification for switching power supply for micro computer systems

10、GB/T9254-2008: Limits and measurement methods for radio interference characteristics of information technology equipment.

11、The Enterprise Standard of PYW ELECTRONICS TECH. Co., LTD

■**Statement** ：

Class A statement

Warning

This is a class A product, which may cause radio interference in living environment.
In this case, it may be necessary for users to take practical measures against their interference.