

Industrial Power Supply Specification

Model: HDZ1502-3C
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ECN List

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1. INPUT CHARACTER:

ITEM	MIN	NORMAL	MAX	UNITS	CONDITIONS
1.1 Input voltage	90	100~240V	264	VAC	
1.2 Input frequency	47	50-60	63	Hz	
1.3 Input current	/	2	2.5	A	Input 180Vac /Full Load
	/	2	2	A	Input 90Vac /Full Load
1.4 Power Factor	0.45	/	/		Input 230Vac /Full Load
1.5 Power Efficiency	/	0.8			Input 230Vac /Full Load

NOTE:

Power supply inrush current shall be less than the ratings of its critical components (including bulk rectifiers, fuses, and surge limiting device) under all conditions of line voltage of Section 1.1.

2. OUTPUT CHARACTER

ITEM	OUTPUT	MIN	NORMAL	MAX	UNITS	CONDITIONS
2.1 Output Rated Voltage	12V	11.4	12	12.6	Vdc	Input 90-264VAC Full Load
	24V	22	24	26	Vdc	Input 90-264VAC Full Load
2.2 Output Rated Current	12V		6	8	A	Input 180-264VAC Full Load
	24V		3.25	6	A	Input 180-264VAC Full Load
	12V		4.2	5.3	A	Input 90-132VAC Full Load
	24V		2.0	4	A	Input 90-132VAC Full Load
2.3 Line Regulate	12V	/	/	±2	%	Input 90-264VAC Full Load
	24V	/	/	±2	%	Input 90-264VAC Full Load
2.4 Load Regulate	12V	/	/	±5	%	Input 90-264VAC
	24V	/	/	±5	%	Input 90-264VAC
2.5 Ripple / Noise	12V	/	/	120	mV	Input 180-264VAC Full Load
	24	/	/	240	mV	Input 180-264VAC Full Load
	12V	/	/	180	mV	Input 90-132VAC Full Load
	24	/	/	240	mV	Input 90-132VAC Full Load

Ripple & Noise: Tested by a oscilloscope using 20MHz bandwidth and the output is paralleled a 0.1uF ceramic capacitor and a 10uF electrolysis capacitor. (Under 0~40°C)

2.6 The cross-load regulation is defined in the matrix below.(UNIT: A)

	180-264V		90-132V	
Range	+12V	+24V	+12V	+24V
1	0.5	0.5	0.5	0.5
2	8	2.25	5.3	1.5
3	0.5	6	0.5	4
4 半载	3	1.6	2.1	1
5	8	0.5	5.3	0.5
6 满载	6	3.25	4.2	2

2.7 Dynamic Load

The following transient loads are to be applied to the output. The waveform shall be a square wave with the slope of the rise and fall at 0.5A/us. The square wave shall have a frequency 50Hz to 10KHz with a duty cycle of 0 to 100%.

The output voltages shall not exceed regulation limits as defined in 2.1 under the following condition:

Dynamic Load Step Sizes:

输入电压 (V)	NOM. OUTPUT VOLTAGE (VDC)	Start CURRENT	CURRENT I _{max}	STEP LOAD CHANGE
180-264	+12V	0.5A	8A	40%
	+24V	0.5A	6A	40%
90-132	+12V	0.5A	5.3A	40%
	+24V	0.5A	4A	40%

NOTE:

It is not required about Ripple / Noise when it works in -25°C.

Ambient temperature:

At 180V-264VAC

(1)The continuous output power shall not exceed 150W at 25°C.

(2)The continuous output power shall not exceed 150W at 40°C.

At 90V-132VAC

(3)The continuous output power shall not exceed 100W at 25°C.

(4)The continuous output power shall not exceed 100W at 40°C.

3. PROTECTION

The power supply should protect itself when OCP/OTP/OPP or short circuit occur, it will recover within 30S after the fault has been removed.

3.1 OVER CURRENT PROTECTION

When output current reaches 110%-150%, the power supply will protect itself.

3.2 OVER VOLTAGE PROTECTION

When output voltage reaches the following voltage, the power supply will protect itself and latch off.

ITEM	OVER VOLTAGE
12V	13.2-18V
24V	26.4-36V

3.3 OVER POWER PROTECTION

When output power reaches the following power, the power supply will protect itself.

	ITEM	OVER POWER
90-132V	12V/24V	110W-175W
180-264V	12V/24V	165W-225W

3.4 SHORT CIRCUIT PROTECTION

When output is short, the power supply don't be damaged,don't burst into flames and it will recover when such condition's removed.

4 Time Sequence

4.1 turn-on time T1

Power on time of the power supply should be less than 500mS ,while the input voltage is 115Vac/60Hz、230Vac/50Hz.

4.2 Rise time T2

The output voltages shall rise from $\leq 10\%$ of nominal to $\leq 90\%$ of nominal within 0.1 ms to 25ms.The output voltage shall rise/fall at a smooth continuous rate.

4.3 AC loss to output voltage hold-up time T3

The output voltage shall remain an normal level for at least 10msec after AC power is removed, while the input voltage is 115Vac/60Hz、230Vac/50Hz.

5. SAFETY REQUIREMENTS

ITEM	GRADE	STANDARD (TEST CONDITIONS)
Input to output	3000Vac	Time 60S, Cut off current 10mA MAX
Input to earth	1500Vac	Time 60S, Cut off current 10mA MAX
Insulating resistance	10MΩ	10MΩ, Air Temperature 25℃, Relative Humidity 91%--95%, at 500VDC

6. EMC

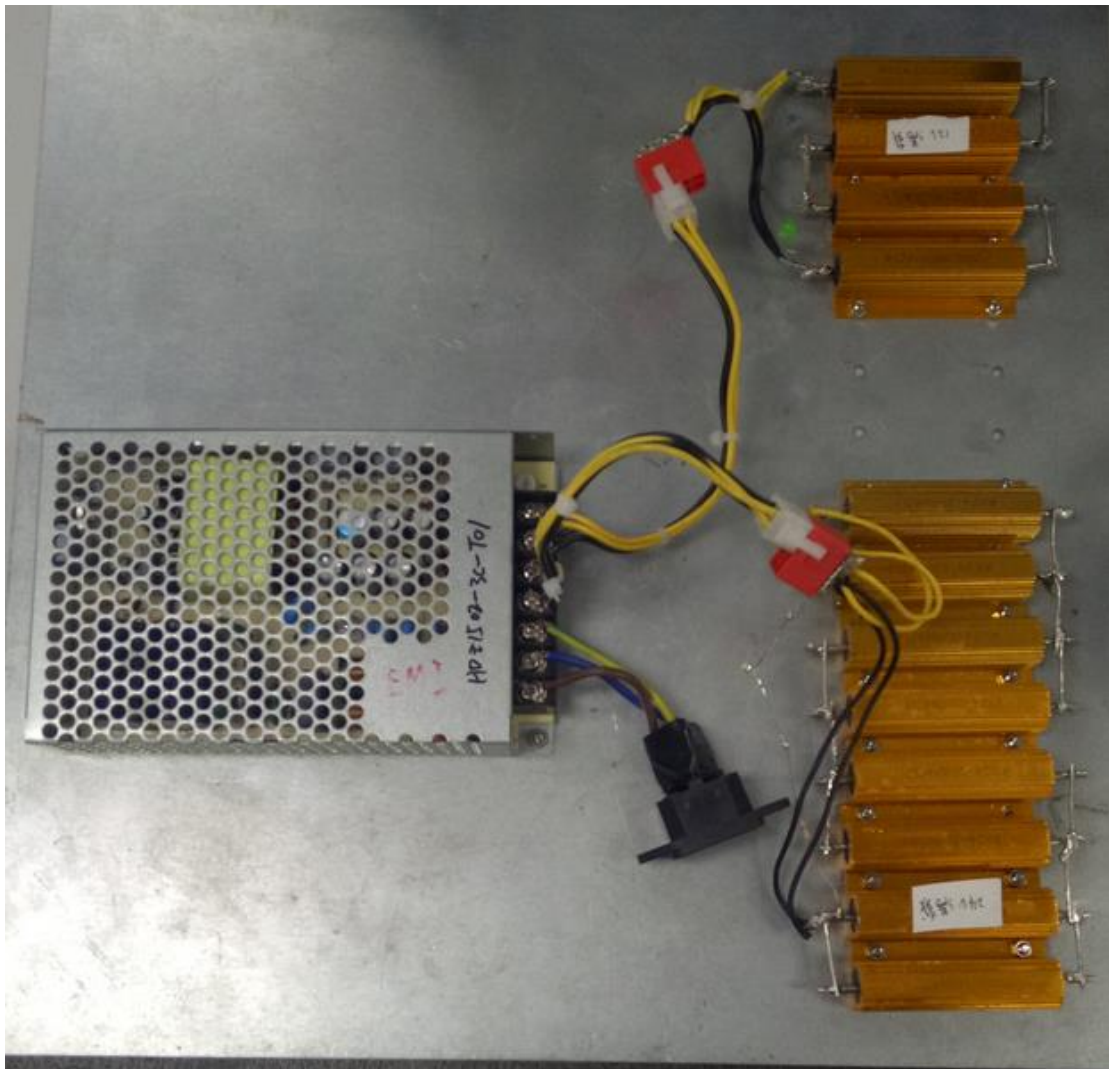
6.1 EMC

ITEM	INDEX REQUIREMENTS	SDANDARD
CE	CLASS A	GB 9254
RE	CLASS A	GB 9254
ESD	/	IEC61000-4-2 Level 3
ESD	/	IEC61000-4-2 Level 3
EFT/B	2KV 5/50 Tr/Th Ns, Rep Freq: 5khz	IEC61000-4-4 Level 3
SURGE	Line To Line $\pm 1\text{kV}$ 、Line To Ground $\pm 2\text{kV}$	IEC61000-4-5 Level 3

航嘉电源属标准品，使用范围相当广泛而无法模拟实际测试，但实际考量客户系统设备的机

构外壳多为金属材质，故将电源模拟置于金属平面底板上进行 EMI 测试(配置如下图)，将

铁板较长边正对接收仪器，并以铝壳电阻负载测试满载等状况，特定用途者如 LED 照明或电池充电，则使用标准灯具或电池为负载进行验证。测试系统配置方式会依实际需求决定是否采电源与负载分离方式来配置。以上 EMI 验证均经第三者合格实验室测试通过且预留适当的裕量，CCC 认证证书也依此测试签署报告，并定期抽样测试，以确保产品符合法规的要求。



6.2 Hi-Pot

Input to output: Voltage 3000VAC Time 3.0S, Cut off current 10mA MAX.

Input to ground: Voltage 1500VAC Time 3.0S, Cut off current 10mA MAX.

Insulating resistance: Normal temperature and pressure, relative humidity 90 percent, the test voltage is DC 500V, rectifier main circuit ,AC and DC part way to exchange, and Input to output,Input to ground.Resistance shall not be less than 10M Ω .

7.ENVIRONMENT ADAPTABILITY

7.1 ENVIRONMENT CONDITION

ITEM	MIX	NORMAL	MAX	UNITS	NOTE
OPERATION TEMPERATURE	-25	25	40	°C	
STORAGE TEMPERATURE	-40	25	70	°C	
OPERATION HUMIDITY	5	--	90	%	No Condensation
STORAGE HUMIDITY	5	--	95	%	No Condensation
ATMOSPHERIC PRESSURE	86		106	KPa	
Altitude			5000	meters	Non-operating To 15250 meters
EMITTING HEAT MODE	system cooling				

Note: The air Temperature at the place higher 2m to ground and front 0.4m to power.

7.2 RELIABILITY REQUIREMENTS

MTBF $\geq$ 50000 hours (When normal atmospheric pressure, at 25°C,Full Load).

7.3 Cooling:

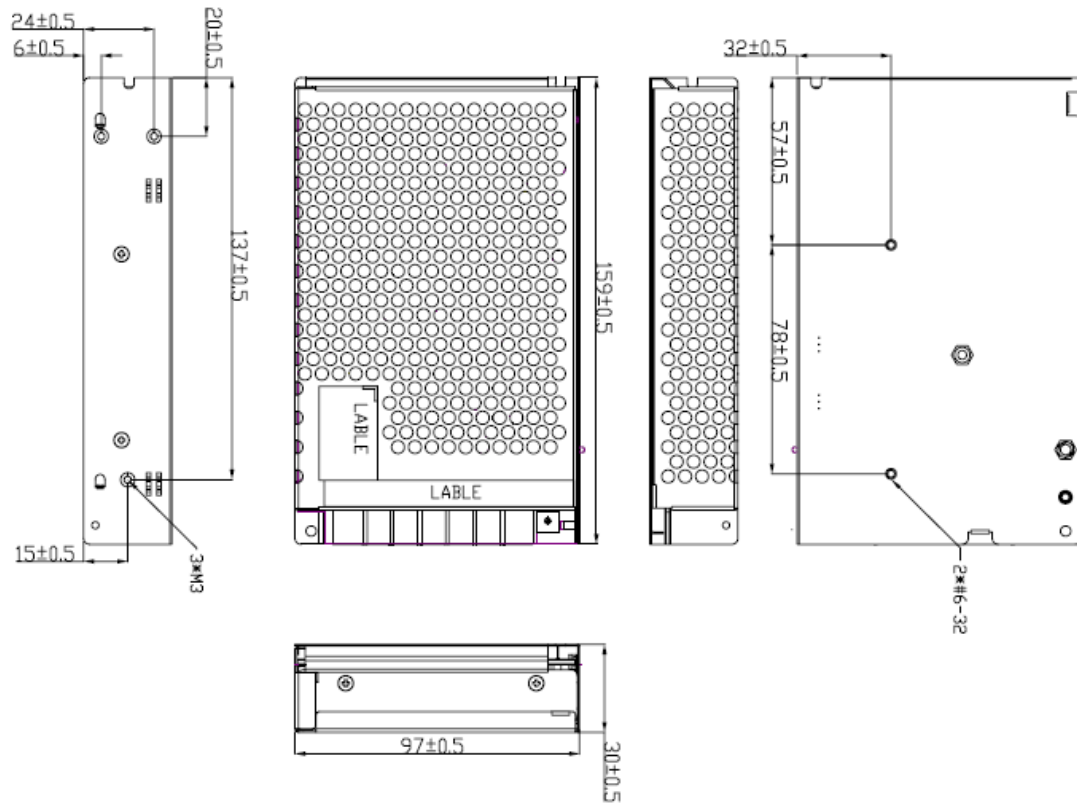
The power supply shall provide natural air cooling for the host system (probable size of the host system: length*width*height=360mm*360mm*1mm)

8. POWRE MECHNICAL SPECIFICATION

8.1 POWRE BOARD SIZE

9 Mechanical

9.1 Mechanical outline



9.2 Label drawing

