

CUSTOMER

SPECIFICATION

MODEL NO.: W1P2-K240-V024

DOCUMENT NO.:

CUSTOMER MODEL NO.:

DATE: 2016-12-17

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CUSTOMER	√	CUSTOMER SIGNATURE	NOTE
FULL APPROVAL			
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ONE: APPLICATION OF THIS FILE

- 1.Reference of design, manufacturing and inspection
- 2.Reference of raw material selection
- 3.Reference of QC sampling inspection
- 4.Reference of technical certification

TWO: PRODUCT FEATURES

W₁P₂-K240-V024 is an AC to DC power supply, its main features are as follows:

Wide input voltage range 90~264Vac

Constant voltage mode output

Built-in active PFC function

IP67 rating for indoor or outdoor installations

Built-in EMI filter, lower ripple & low noise

Protections: output over current, over voltage, over load, short circuit, & over temperature protection

5 years warranty

Max. Output Power	Rated Input Voltage	Output Voltage	Rated Output Current	Output Voltage Tolerance	Output Ripple & Noise
240W	100~240Vac	24Vdc	10A	≤±2%	≤300mVp-p

THREE: ENVIRONMENT

No.	Item	Technical Requirements	Unit	Note
1	Working Temperature	-40~ +70(Typ. 25)	°C	Refer to “Derating Curve”
2	Max. Case Temperature	95	°C	Tc
3	Storage Temperature	-45~ +85(Typ. 25)	°C	
4	Relative Humidity	10~95	%	No condensing
5	Altitude	0~5000	m	Altitude over 2000 meters, the load is derated by 1.5% for every 100 meters.
6	Protection Rating	IP67		The power supply shall not be immersed in water for more than 0.5 hours (less than 1 meter in depth); It shall not be buried underground for use.
7	Cooling Method	Ventilation Cooling		

FOUR: ELECTRIC CHARACTERISTIC

1	Input			
No.	Item	Technical Requirements	Unit	Note
1.1	Rated Input Voltage	100~240	Vac	
1.2	Input Voltage Range	90~264 (typ. 115/230)	Vac	Refer to “Derating Curve”
1.3	Rated Frequency	50/60	Hz	
1.4	Frequency Range	47~63	Hz	
1.5	Max. Input Current	3.5	A	100Vac, rated load
1.6	Inrush Current	≤75	A	240Vac, 25°C, cold start
1.7	PF	≥0.95		100~240Vac, rated load
1.8	THD	≤15	%	100~240Vac, rated load

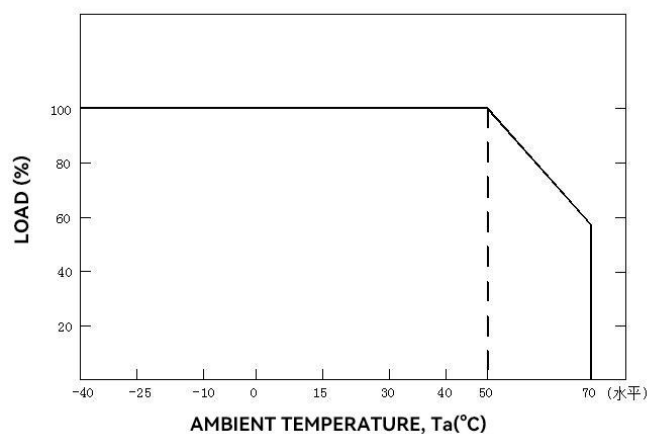
2	Output			
No.	Item	Technical Requirements	Unit	Note
2.1	Rated Output Voltage	24	Vdc	
2.2	Rated Output Current	10	A	
2.3	Max. Output Power	240	W	Refer to “Derating Curve”
2.4	Efficiency	$\geq 88\%$ (Typ. 91%)		25°C, 115Vac, rated load
		$\geq 91\%$ (Typ. 93.5%)	-	25°C, 230Vac, rated load
2.5	Line Regulation	$\pm 1\%$		
2.6	Load Regulation	$\pm 2\%$		
2.7	Voltage Tolerance	$\pm 2\%$		
2.8	Ripple & Noise	≤ 300	mVp-p	25°C, rated input, rated load, bandwidth of 20MHz, connected a 10uF electrolytic capacitor and a 0.1uF ceramic capacitor in parallel to the output terminals.
2.9	Dynamic Response Overshoot	≤ 5	%	5%~50%~25%, 50%~75%~50 load dynamics, half-wave period is 4mS, current change slope is 0.1A/uS
2.10	Dynamic Response Recovery Time	200	us	
2.11	Turn-on Delay Time	≤ 3	S	100~240Vac, rated load
2.12	Output Voltage Rise Time	≤ 50	ms	100~240Vac, rated load, 25°C
2.13	Turn-on/off Overshoot	$\leq \pm 10\%$		
3	Protection			
No.	Item	Technical Requirements	Unit	Note
3.1	Over Current Protection	15~20	A	Hiccup model, recovers automatically after fault condition is removed

3.2	Over Temperature Protection	70~80	°C	Ambient temperature, rated load
3.3	Over Voltage Protection	≤ 32	V	
3.4	Short Circuit Protection	Long time short-circuit protection without damage, recovers automatically after fault condition is removed.		

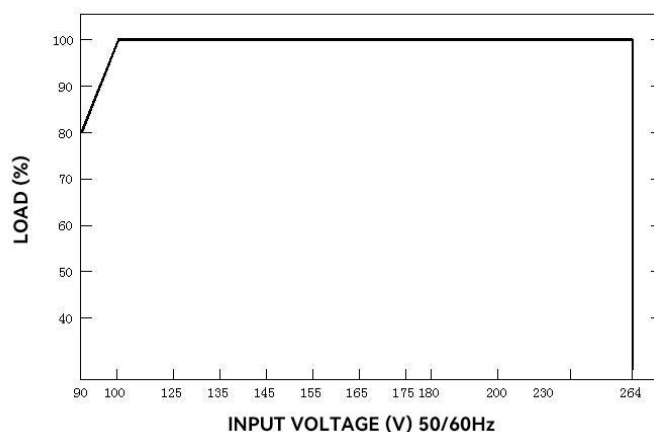
Derating Curve

In order to ensure that the product can achieve the expected design service life, please configure the AC supply voltage and load of the power supply according to the derating requirements of the following curve. When the ambient temperature rises to a certain value, the output power also needs to be derated.

■ OUTPUT LOAD vs AMBIENT TEMPERATURE



■ OUTPUT LOAD vs INPUT VOLTAGE



FIVE: SAFETY AND EMC STANDARDS

5.1 Safety

NO	Item		Testing Condition	Note
5.1.1	Dielectric Strength (Hi-Pot)	I/P-O/P	3750Vac, 60S, current $\leq$ 10mA	No arcing,no breakdown
5.1.2		I/P-FG	1750Vac, 60S, current $\leq$ 10mA	
5.1.3		O/P-FG	500Vac, 60S, current $\leq$ 10mA	
5.1.4	Insulation Resistance	I/P-O/P	$\geq 10\text{M}\Omega @ 500\text{Vdc}$	90% RH, 1atm
5.1.5		I/P-FG	$\geq 10\text{M}\Omega @ 500\text{Vdc}$	
5.1.6		O/P-FG	$\geq 10\text{M}\Omega @ 500\text{Vdc}$	
5.1.7	Leakage Current		$< 0.7\text{mA}$	240Vac/60Hz

5.1.8	Safety Standard	IEC/EN61347-1, EN61347-2-13, UL1310.
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5.2 EMC

No.	Item	Test Conditions	Note
5.2.1	Harmonics on AC Mains	IEC 61000-3-2:2009 (Limit : Table 2 , ClassC)	
5.2.2	Voltage Fluctuations on AC Mains	IEC 61000-3-3:2008 (Limit: Clause 5)	
5.2.3	Terminal Continuous Disturbance Voltage at AC Mains	CISPR 15-2009 (Limits: Table 2a, Frequency range : 9K-30M Hz; Kind of test site : Shielded room; Operation Condition : According to Clause 6 & 8.4 Operation mode : A)	
5.2.4	Radiated Electromagnetic Disturbances	CISPR 15-2009 (Limits: Table 3a, Frequency range : 9K-30M Hz; Kind of test site : Shielded room; Operation Condition : According to Clause 6 & 8.4 Operation mode : A)	
5.2.5	Radiated Electromagnetic Disturbances	CISPR 15-2009 (Limits: Table 3b, Frequency range : 30M-300MHz; Kind of test site : 3m semi-anechoic chamber; Operation Condition : According to Clause 6 & 9.4 Operation mode : A)	
5.2.6	Radio-Frequency Electromagnetic Field (RS)	IEC 61547:2009 (Test Specification: Table 2, Performance Criterion:A; Frequency Range:80-1000MHz; Test Level : 3V/m (Unmodulated, rms); Modulation :1kHz, 80 % AM, sine wave)	
5.2.7	Injected Currents/Conducted Susceptibility (CS)	IEC 61547:2009 (Test Specification : Table 8 & 9, Performance Criterion:A; Frequency Range:0.15-80MHz; Test level: 3 V r.m.s. (unmodulated);	

		Modulation:1kHz, 80 % AM, sine wave Source impedance : 150Ω)	
5.2.8	Electrical Fast Transients (EFT)	IEC 61547:2009 (Test Specification: Table 5 & 6, Performance Criterion: B; Test level :±0.5kV,±1kV; Test duration : ≥60sec; Rise time : 5/50ns; Repetition frequency :5 kHz)	
5.2.9	Surge	IEC 61547:2009 (Test Specification: Table 10, Performance Criterion: C; Test level :±2kV(line to line); ±4kV(line to ground), Coupling phases : $\pi/2$, $3\pi/2$; Number of surges : 5 (for each combination of parameters); Repetition rate : Max. 1/min)	
5.2.10	Electrostatic Discharges (ESD)	IEC 61547:2009 (Test Specification: Table 1, Performance Criterion: B; Air discharge:Level 3 (±8kV), Contact discharge:Level 2 (± 4kV); Number of discharges : >10)	
5.2.11	Voltage Dip and Interruption	EN 61547:2009 (Test Specification: Table 11– Voltage dips& Table 12–Voltage interruption, Performance Criterion: C-Table 11, B-Table 12)	

Immunity criterion:

A: No degradation of performance is allowed in any way compared to normal conditions.

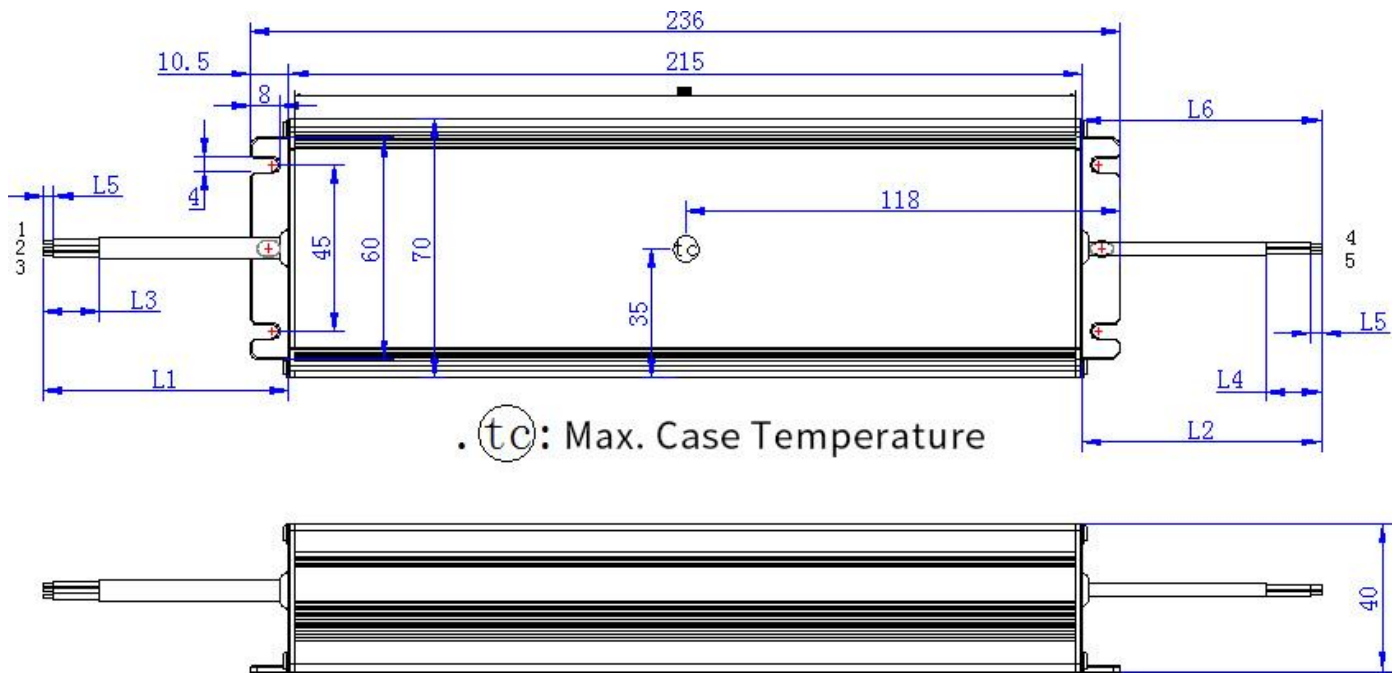
B: Degradation of performance is allowed, but reset or function interruption in any way is not allowed

C: Automatic reset after temporary function interruption is allowed, and prolonged function interruption or user reset is not allowed.

R: Damage to any device except the protection device is not allowed, and the performance can be restored after the replacement of the damaged protection device.

SIX: MECHANICAL SPECIFICATION

No.	Item	Parameters (Unit: mm)	Note
6.1.1	Overall Dimension	236(L)*70 (W)*40(H)	
6.1.2	Three-Core Input Cable	Length:300	Brown(L) Blue(N) Yellow-Green G)
6.1.3	Two-Core Output Cable	Length:300	Red(V+) Black(V-)



Note: L1=300±5mm; L2=300±5mm; L3=30±2mm; L4=30±2mm; L5=5±1mm

SEVEN: RELIABILITY REQUIREMENT

MTBF≥150K hours. Test condition: 25°C, rated load, MIL-HDBK-217F Notice 2

EIGHT: PRODUCT LABEL

INPUT ◦ L Brown ◦ N Blue ◦ ⊕ Yellow&Green S/N: _____	LEADPOWER MODEL:W ₁ P ₂ -K240-V024 INPUT:100-240V~ 50/60Hz 3.5A Max. $\lambda \geq 0.95$ OUTPUT:24V $\pm$ 10A Rated output power:240W	Suitable for use in dry, damp and wet locations ta:50°C tc:90°C	IP67	OUTPUT V+ Brown ◦ V - Blue ◦
MADE IN CHINA Shenzhen LeadPower Technology Co., Ltd			! WARNING: Power can not be immersed in water or buried underground for a long time	•Constant voltage type •Suitable for LED module use.

Material: matte silver polyester(heat resistance up to 85°C, environment friendly, stain & scratch resistance)

NINE: SAFETY PRECAUTIONS

9.1. Unpacking

Check the device for damage in transit. Keep packing materials until all power supplies have been registered and inspected.

9.2. General

The air passage of the power supply unit shall not be blocked. The distance between any conductive parts of the power supply and metal parts must comply with the relevant safety standards.

9.3. Safety protection matters

Once the safety protection of the equipment is damaged, the equipment must be stopped and dealt with according to the relevant maintenance regulations.

Condensation may cause dangerous problems when the power supply is transferred from a cold environment to a warm environment, so the grounding requirements must be strictly enforced. Only qualified personnel connect it to the grid.

The power supply must be shut down for four minutes before maintenance, so that the capacitors have sufficient discharge time.

9.4. Notes

The power supply shall be used under the environmental conditions specified in the specification;

The power supply shall not be immersed in water for more than 0.5 hours (less than 1 meter in depth); It shall not be buried underground for use;

The power supply shall be well ventilated and dissipated during use;

During startup or use, if smoke or unpleasant odor is found, turn off the power immediately.

TEN: PACKING, TRANSPORTATION, STORAGE

10.1. Packing

The product name, model number, quantity, manufacturer identifier, inspection certificate issued by the manufacturer's quality department, and manufacturing date shall be printed on the outer box.

10.2. Transportation

It is suitable for transportation by vehicle, ship and plane. During transportation, it shall be covered with awning, keep out of the direct sunlight, load and unload carefully.

10.3. Storage

When the product is not in use, it shall be placed in the packaging box. The ambient temperature of the warehouse shall be between -45 and +85°C, and the relative humidity there shall be 10%~95%.

The warehouse is not allowed to have harmful gases, flammable, explosive products and corrosive chemicals and no strong mechanical vibration, shock and strong magnetic field.

The packaging box shall be at least 20cm high from the ground, at least 50cm distance from the wall, heat source, window & air inlet. The storage period under above conditions is generally 2 years, re-inspection shall be conducted after 2 years.