



SPECIFICATION FOR APPROVAL



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KSA-180P-M3

AC/DC ADAPTOR

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KSA-180P-M3

Manufacturer Part No.: KS240446



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1. INPUT REQUIREMENTS

1.1 Highlight & Features

- Simple design philosophy.
- Reliability level of 100K hours MTBF @ 25°C (rated input voltage and using the Telcordia SR-332 issue 3 method).
- DC output voltage must be Safe Extra Low Voltage (SELV) & Limited Power as defined by IEC62368-1.
- Compliant with Class B USB Type-C Power Delivery Specification.
- The adapter meets PD 3.0, PD3.1.

1.2 General Description

This specification defines the performance characteristics for a class II adapter, single-phase 180.0 watts. Single output level power supply.

1.3 Chemical Substance Control Laws

PAHS 6P NP NOP REACH ROHS

1.4 Input Conditions

The supply shall operate over the voltage ranges as follows :

Rated input voltage	100-240Vac
Operating range	90-264Vac
Rated input frequency	50/60Hz +/- 3Hz
Rated input current	2.5A max. @ 100Vac to 240Vac
Power consumption (no-loading at 5V)	0.21W maximum @230Vac
Primary current protection	An adequate internal fuse on the AC input line is provided.
Input Configuration 2 Conductor	<u>3</u> Conductor

1.5 Ac inrush current

No damage shall be occurred and the input fuse shall not be blown up nominal input voltage full load 25°C cold start.

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2. OUTPUT REQUIREMENTS

2.1	Nominal DC output voltage	Fixed PDO							AVS
		5.0V	9.0V	12.0V	15.0V	20.0V	28.0V	36.0V	15.0-36.0V
2.2	Minimum load current	0A							
2.3	Rating load current	3.0A	3.0A	3.0A	3.0A	5.0A	5.0A	5.0A	5A Max.
2.4	Rating output power	180.0W Max.							180.0W Max.
2.5	Line regulation	The line regulation is less than <u>±5%</u> while measuring at rated load							
2.6	Load regulation	The load regulation for +5.0V,+9.0V,+12.0V,+15.0V,+20.0V,+28.0V,+36.0V is less than <u>±5%</u> , at measured output load from 0% to 100% rated load.							
2.7	Ripple and noise	Fixed PDO							AVS
		5.0V	9.0V	12.0V	15.0V	20.0V	28.0V	36.0V	15.0-36.0V
		250mVp-p	250mVp-p	250mVp-p	250mVp-p	300mVp-p	300mVp-p	350mVp-p	350mVp-p
Add 0.1uF/50V ceramic capacitor and 10uF/50V aluminum electrolytic capacitor in parallel the output terminal. Measured with 20MHz Bandwidth Oscilloscope at full load land rated input voltage 115Vac & 230Vac.									
2.8	efficiency	90% minimum@36V/5A load AC115V/60Hz and 230V/50Hz,full load.							
2.9	Turn on delay time	3000 ms max. at nominal input AC voltage and full load.							
2.10	Rise time	The supply shall have a start-up rise time of less than 100ms to rise to within regulation limits for all DC outputs.							
2.11	Hold up time	When power off, DC output must be maintained 8 ms in regulation limit at 115V/230Vac and full load.							
2.12	Output over-shoot	Less than 10% of nominal voltage value.							
2.13	Protection function								
	Over-voltage protection	7.5V max. (5.0V mode); 11.25V max. (9.0V mode); 15.0V max. (12.0V mode); 19.0V max. (15.0V mode); 25.0V max. (20.0V mode), 35.0V max. (28.0V mode), 44.0V max. (36.0V mode)The output voltage shall be clamped by internal protection.							
	Short-circuit protection	The adapter shall not be damaged by short the DC output to Ground. The adapter removed.							
	Over current protection	When overload is applied to the output, the power supply shall be shut down and enter auto-recovery or latch mode 7.5A max.							

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2.14	Dynamic Response	Output voltage limit shall remain within +/- 10% Adaptor shall be subjected to increases and decreases from 0 to 25% to 50% of maximum load current, 50% to 75% of maximum load current, and 75% to 100% of maximum load current. In all tests, the load slew rate shall be no less than 100mA/us.
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3. MECHANICAL

3.1 Enclosure and Layout

Plastic case	UL94V-0
Weight	/ g (Max.)
Dimensions	127x57x32.5mm
Color	Black

3.2 Input and Output Configuration

Input pin	Mini 3Pin
Output connector	USB Type-C
Polarity	A4,A9,B4,B9 "+" A1,A12,B1,B12 "-",
Cable	1.5M 17AWG+26AWG+S(17AWG) UL2725 0D4.0 BLACK

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4. REGULATORY COMPLIANCE

4.1 EMC Specifications

The external power supply must meet all specification in this section. it is required that the external power supply work closely with the customer's equipment in order to get the best EMC solution.

4.1.1 Radiated and Conducted Emission

FCC part 15: Class B for radiated and conducted emissions.

EN55032, Class B for radiated and conducted emissions.

4.2 Immunity

4.2.1 Electrostatic Discharge Immunity

EN 55035, EN 61000-4-2

Air Discharge: $\pm 8\text{kV}$

Contact Discharge: $\pm 4\text{kV}$

Performance Criteria B

Electrostatic-discharge test by contact or air should be conducted with Static-discharge tester (energy storage capacitance of 150pF and discharge resistance of 330 Ω) 8kV air discharge, 4kV contact discharge.

4.2.2 Radiated Field Immunity

EN 55035, EN 61000-4-3

Frequency Range: 80-1000MHz, still need test singly 1800MHz, 2600MHz, 3500MHz, 5000MHz

Field Strength: 3V/m with 80% amplitude modulation of 1kHz

Performance Criteria A

Radio-frequency electromagnetic field susceptibility test, RS 80-1000MHz, 3V/m, 80%AM(1KHz).

4.2.3 Fast Transient Immunity

EN 55035, EN 61000-4-4

Power line: 1kV

Signal line: 0.5kV

Performance Criteria B

4.2.4 Surge Immunity

EN 55035, EN 61000-4-5

- Line to line: $\pm 1\text{kV}$

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- Line to earth: $\pm 2\text{kv}$

- + 90° / -270°

Lighting surge voltage of differential and common modes shall be applies across AC input lines and across input and frame ground.

4.3 Safety Requirements and Certification

4.3.1 Regulatory Standard

The power supply shall comply with the following international regulatory standards:

for short	Country or Region	Certified Status	Standard
UL	USA	/	UL 62368-1

4.3.2 Additional Safety Requirements

© Dielectric Withstand Voltage, Primary(input AC short)-to-Secondary(output DC short): 3000 Vac, 5mA, 1 minute.

Dielectric Withstand Voltage, Primary(input Ac short)-to-Ground: 1500Vac, 10mA, 1 minute

© Insulation Resistance, Input to output: 100M Ω (MIN.) at 500 VDC.

© Reinforced insulation system, Primary-to-Ground and Primary-to-Secondary.

© The leakage current shall not exceed 0.5mA.]

5. ENVIRONMENTAL REQUIREMENTS

Temperature	Operating	0 °C + 40°C
	Non-Operating	-20°C + 70°C
Humidity	Operating	5%~95% (Non Condensing)
	Non-Operating	5%~95% (Non Condensing)
Altitude	Sea level to 2000m	
Vibration	Meet IEC721-3-3	
Drop Test	At 0.75m drop on concrete surface, one times on each side	

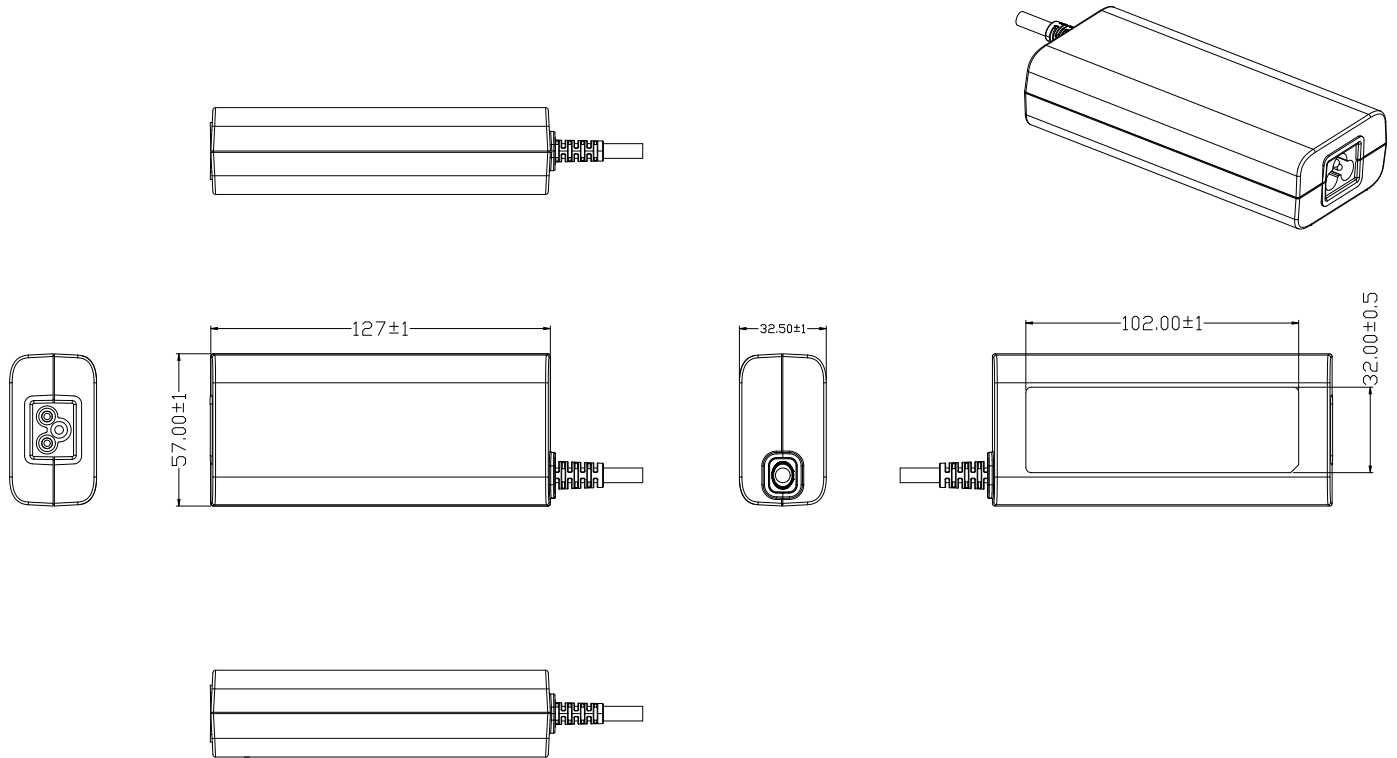
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6. APPEARANCE DRAWING: (UNIT: MM)



NOTE:

1. Case cover & chassis material PC BLACK (NO KTEC)
2. AC PIN MATERIAL: BRASS (NI PLATED)
3. PAHS 6P NP NOP REACH ROHS
4. Satin Finish

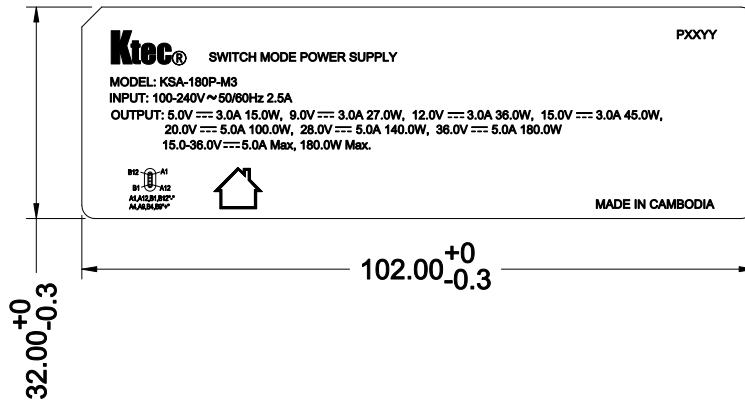
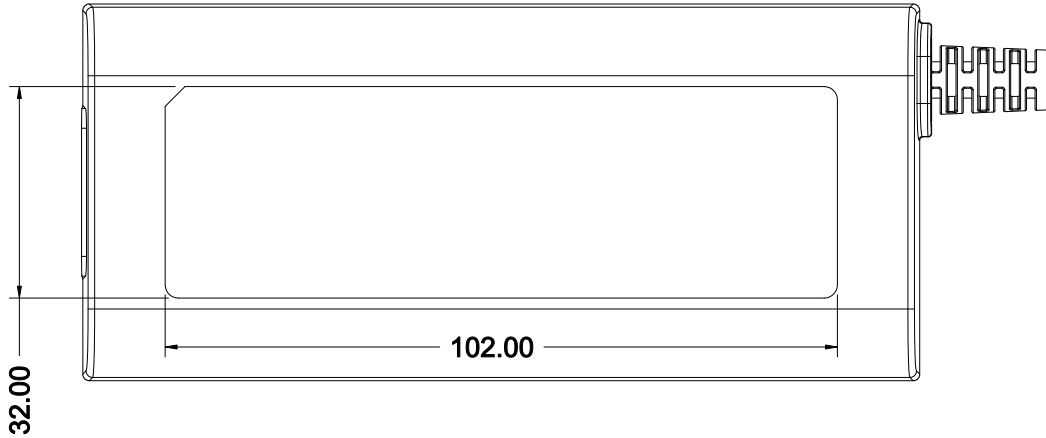
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7. NAME PLATE



Note: Laser

PXXYY (P=PAHS, 6P, NP XX=Week, YY=Year), use the actual production date.

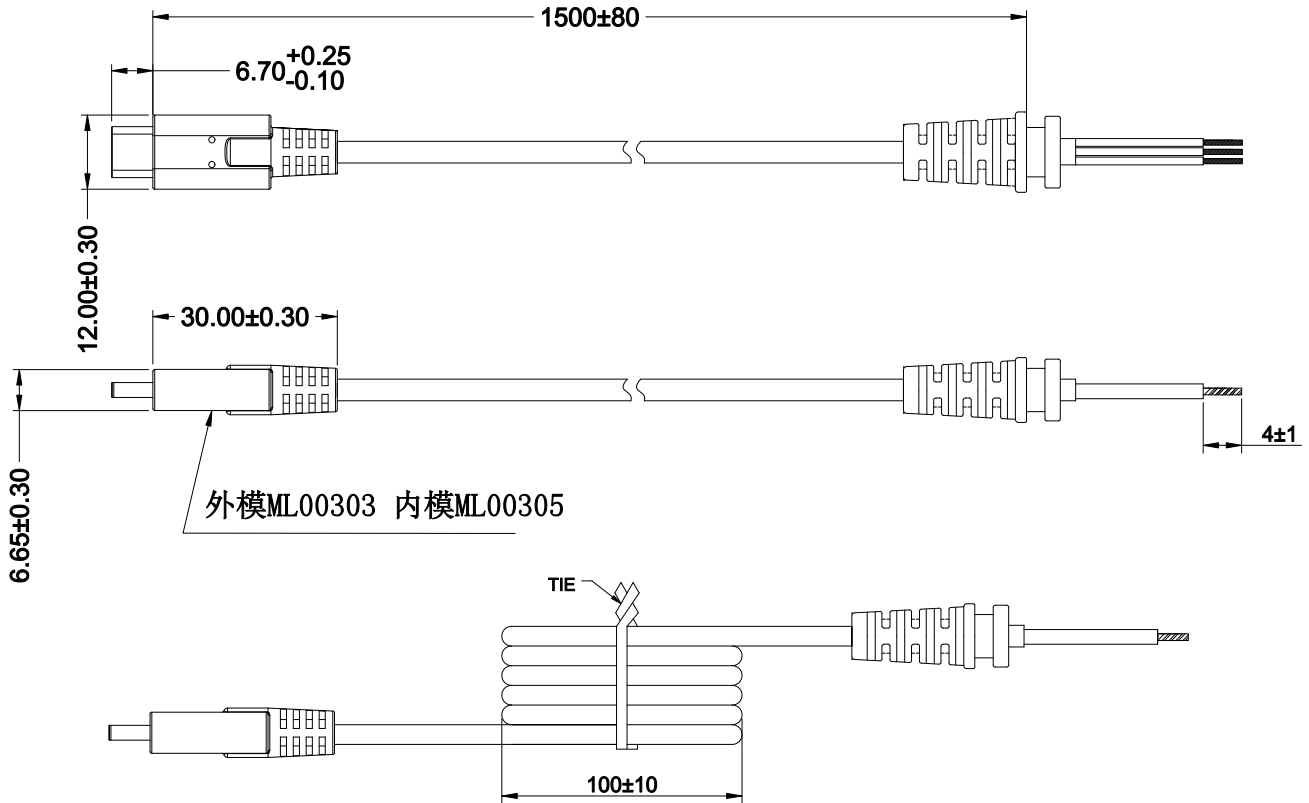
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8. DIMENSION OF OUTPUT PLUG & DC CORD (UNIT: MM)



NOTE: (unit:mm)

1).WIRE TYPE:PVC UL2725 OD4.0 17AWG+26AWG+S(17AWG) L=1500mm BLACK

2).THE POLARITY:



3).PAHS 6P NP NOP REACH ROHS

4). 40-120W SR Mold: ML00512

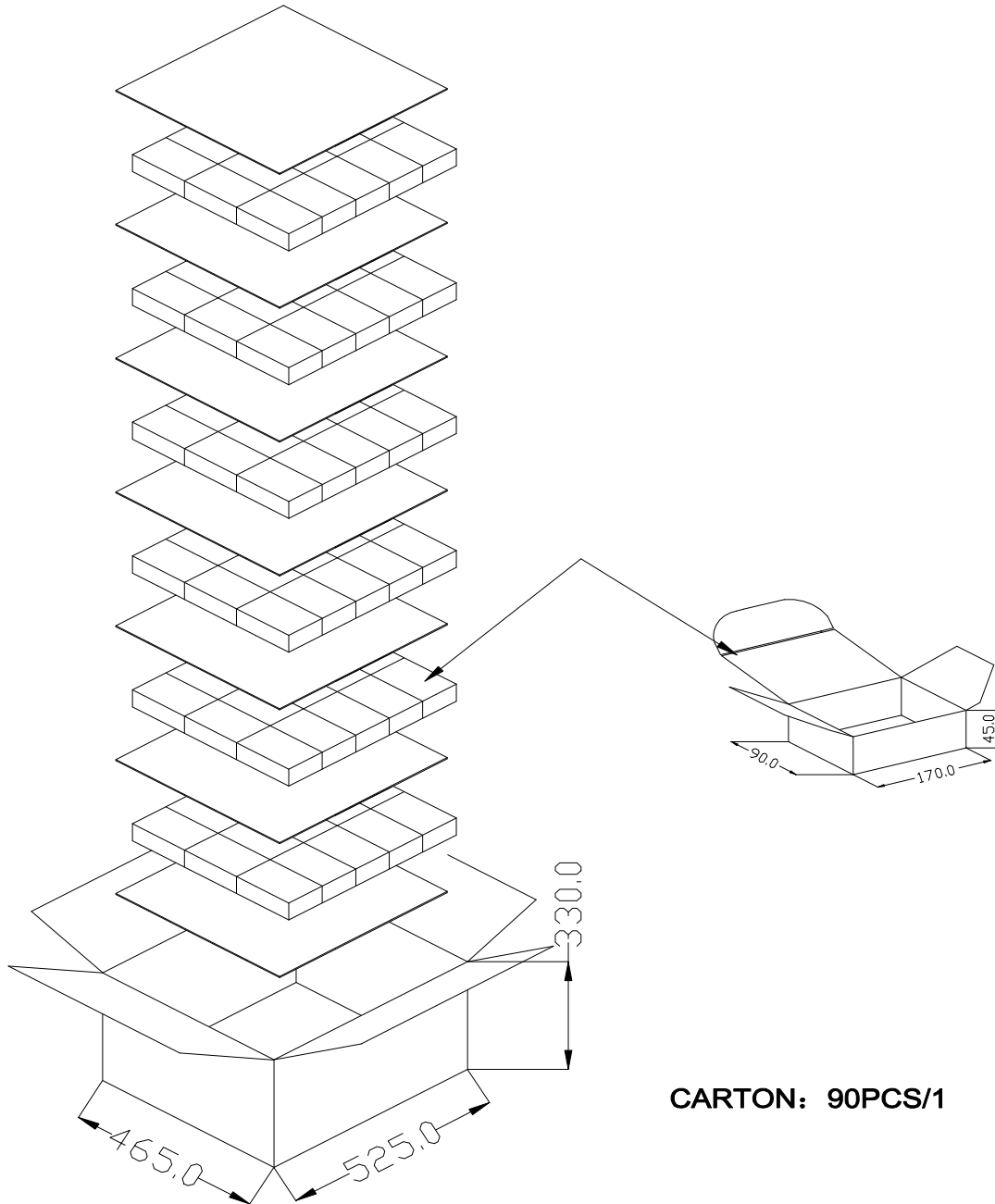
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9. PACKING (UNIT: MM)



CARTON: 90PCS/1