

# SPECIFICATION

## Medical Grade Desktop Power Adapter

Universal AC Input  
60W 12VDC Output

### P/N: A120050ED1M

\*\*\* Specification Approval \*\*\*

This specification (total 8 pages including cover page) in its entirety is approved by:

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Company Name

Print Name

Signature

Date

Specification subject to change without prior notice.



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## 1.0 General Description

The purpose of the document is to specify a single phase AC input, single output switching power supply. This specification is designed for Top model A120050ED1M, which is an AC to DC switching power transfer device providing a single 12V 60W max. DC output with constant voltage source. It defines the input, output, performance characteristics, environment, noise and safety requirement for the power adapter.

## 2.0 Input Requirements

### 2.1 AC Input Voltage

Maximum Voltage:	264Vac
Normal Voltage:	100~240Vac
Minimum Voltage:	90Vac

### 2.2 AC Input Frequency

Maximum Frequency:	63Hz
Normal Frequency:	50~60Hz
Minimum Frequency:	47Hz

### 2.3 Input Current

2.0 A (Max.) @ 100Vac/60Hz-240Vac/50Hz with full load.

### 2.4 Efficiency

87% (avg.) @ Normal input & 25%, 50%, 75%, 100% of max output load.  
Meet CEC Level V requirement.

### 2.5 No-load Power Consumption:

Less than 0.5W @ 230V/50Hz

### 2.6 Configuration

3-wire AC input (Line, Neutral, FG)

### 2.7 Input Fuse

The both Line and Neutral of the AC input shall have a fuse rated is T3.15A/250V

**2.8 Inrush Current**

90A at 230 Vac cold-start, max. load

45A at 115 Vac cold-start, max. load

**2.9 Line Regulation**

This line regulation is less than  $\pm 2\%$ , 100Vac/60Hz-240Vac/50Hz, with full load.

**2.10 Hold Up Time**

10 mSec. @ 100Vac/60Hz-240Vac/50Hz, with full load.

**2.11 Rise Time**

50 mSec. @ 100Vac/60Hz-240Vac/50Hz, with full load.

From 10% to 90% of output voltage.

**2.12 Turn-on Time**

The output voltage should rise to 90% of rated output voltage in less than 3.0 SEC. 100Vac/60Hz-240Vac/50Hz, with full load.

**2.13 Fall Time**

25 mSec @ 100Vac/60Hz-240Vac/50Hz, with full load.

**3.0 Output Requirements****3.1 Output Voltage and Current**

Output Voltage (Vdc)	Current Min.(A)	Current Max.(A)
+12V/ $\pm 5\%$	0	5.0A

**3.2 Static Load Regulation**

$\pm 5\%$  @ 100Vac, 240Vac input, with 0A--full load

**3.3 Dynamic Load Regulation**

$\pm 5\%$  excursion for 50% - 100% load @ 100Vac-240Vac input

**3.4 Drift (Warm-up period)**

$\pm 2\%$  @ 100Vac-240Vac input, with full load for 30 minutes warm up

### 3.5 Ripple & Noise

The power supply shall not exceed the following limits on the indicated voltage for 60Hz or 50Hz ripple, switching frequency ripple and noise and dynamic load variations measured at 20MHz bandwidth.

Ripple & Noise  $V_{p-p}$  350mV@ 100Vac-240Vac input with full load  
(Ripple & Noise are measured at the end of output cable which are added a 0.1uF ceramic capacitor and a 47uF electrolytic capacitor)

### 3.6 Over Voltage Protection

150% rated voltage, latch-off

### 3.7 Short-Circuit Protection

The adapter can withstand continuous short at DC output and no damage. It will enter into normal condition if the fault condition is removed.

### 3.8 Over current protection

150% of max current

When over-current occurred the output should be shut down and the over-current situation is removed the output shall be auto-recover without any harm

### 3.9 Temperature Rise

Less than 45 °C on top/bottom case at normal AC input & 80% load of DC output at environment temperature 25 °C.

### 3.10 Drop-out (Power Line Disturbance)

Output voltage shall remain within the specified regulation range, through the absence of a line input during 1/2 cycle, at full load and normal AC line input

### 3.11 Voltage Isolation

The DC ground will be isolated from the AC neutral and AC line.

## 4.0 Environment

### 4.1 Temperature

Operating : 0 to 40°C

Storage: -20 to 85°C

### 4.2 Humidity

Operating : 10 to 90 %

Storage: 5 to 90 %

### 4.3 Altitude

From sea level to 2,000 Meters (operation) and 5,000 Meters (non-operation)

## 5.0 Safety

### 5.1 Hi-Pot Test

4000 Vac 5mA 3 Sec between primary and secondary circuit and chassis.

### 5.2 Insulation Test

500Vdc, 3 Sec. between primary and secondary circuit

IR should  $\geq$  100 M $\Omega$ .

### 5.3 Leakage Current

$\leq$  100 uA at 240Vac/50 Hz

### 5.4 Safety

UL/cUL (UL60601-1 3rd Ed.)

TUV/GS (EN60601-1:1990+A1+A2+A13)

CB (IEC60601-1:1988+A1+A2)

FCC (FCC 47 CFR Part 18)

CE

### 5.5 EMS

Items	Specification	Reference
ESD	Contact: $\pm 4KV$	IEC 61000-4-2
	Air: $\pm 8KV$	
RS	Frequency: 1KHz Field Strength: 3V/M	IEC 61000-4-3
EFT	1.0 KV on input AC power ports.	IEC 61000-4-4
SURGE	Line to Line: $\pm 1KV$ (peak)	IEC 61000-4-5
	Line to F.G $\pm 2KV$ (peak)	

### 5.6 EMI

Comply with Standards
CISPR 22, EN 55011 Class B FCC PART 18 Class B

## 6.0 Mechanical Characteristics

**6.1 Physical Size:** 132(L)\*54(W)\*31(H)mm

**6.2 Enclosure material:** 94V-0 minimum

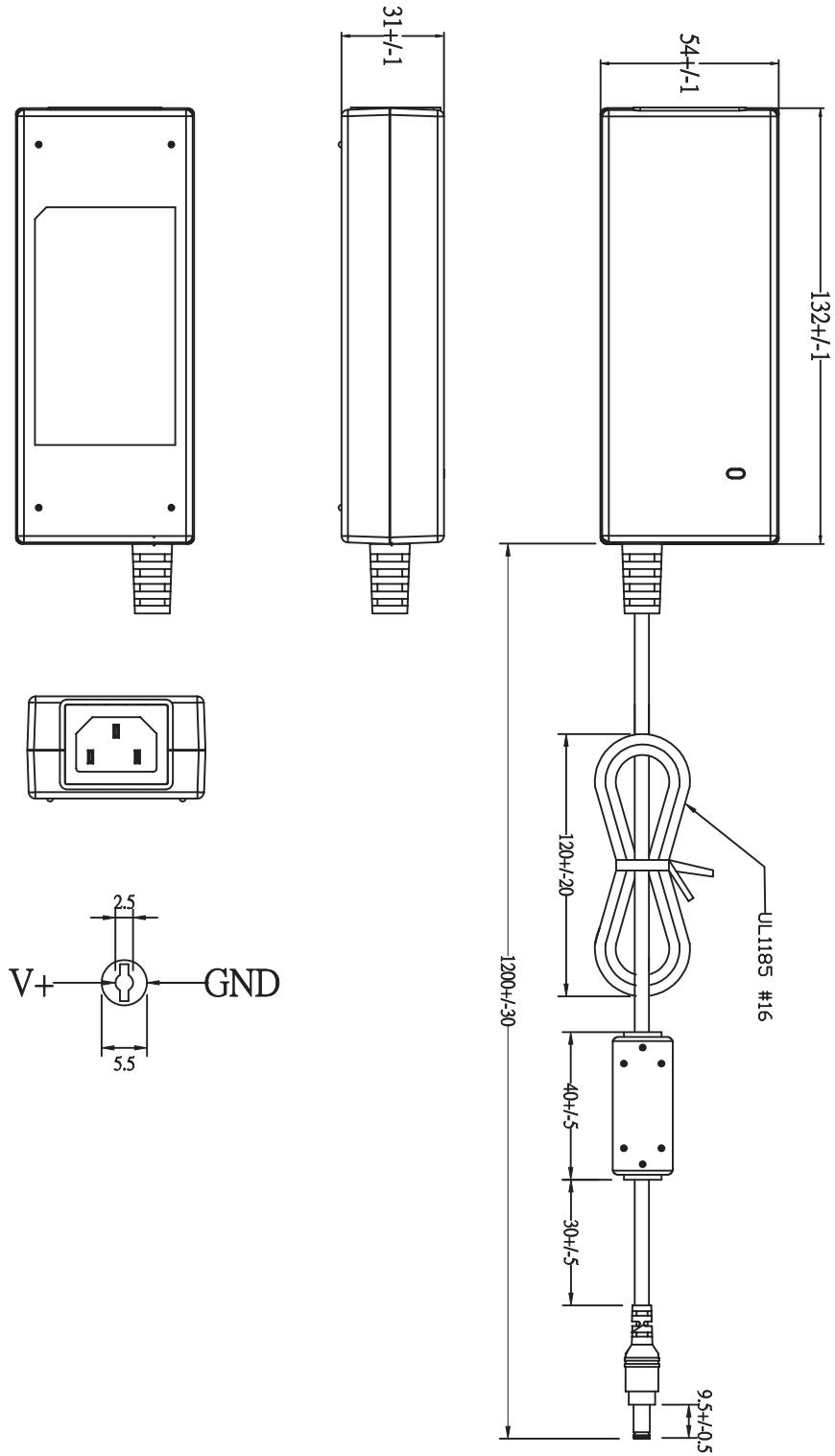
### 6.3 Vibration Test

The vibration frequencies are set at 20Hz, with total amplitude of 1.5mm Along the 3 directions namely X- Y-Z. The each direction should be vibrated for 60 minutes, after testing no abnormal electrical or mechanical should occur.

### 6.4 Drop Test (Referencing to CSA C22.2 No.950/UL1950/UL1310/EN60950)

Products shall be dropped from a height of 900 mm onto a horizontal surface consists of hardwood at 13mm thick, mounted on two layers of plywood each 19mm to 20mm thick, all supported on a concrete or equivalent non-resilient floor. Upon conclusion of test , the equipment need not be operational.

### 7.0 Mechanical Drawing



### 8.0 Label

