

# SPECIFICATION

**SMART POWER**  
**ADPV75 AC/DC adapter**

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**RECORD OF ALTERATION**

<b>PRODUCT NAME</b>	Switching Power for adapter													
<b>MODEL NAME</b>	SMARTPOWER ADPV75													
REVISION :														
	01.	02.	03.	04.	05.	06.	07.	08.	09.	A	B	C	D	E
REV NO.														
<b>REV NO</b>	<b>Issue Date</b>	<b>Effective Date</b>	<b>Details of alteration content</b>				<b>Design</b>	<b>Check</b>						

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## 1 SCOPE

This is engineer specification for 75Watt power desk-top AC/DC adapter , with wide voltage 100 ~ 240V AC input, the output voltage is adjustable by micro-control inside, and the output voltage can be displayed by LED, packaged into a plastic case , models covered:

9V	12V	13V	14V	15V	16V	17V	18V	19V	20V	21V	22V	23V	24V
5A	4.5A	4.5A	4A	4A	3.5A	3.5	3.5A	3.5	3A	3A	3A	2.5A	2.5A

## 2 CONNECTOR

The following specifies the input and output connection requirement of the power supply.

### 2.1 INPUT CONNECTOR

Two sheet copper socket connector or two wire

### 2.2 OUTPUT CABLE/CONNECTOR

A two wire cable with standard right angle barrel connector, The length of the output cable is about 1.8M for all models. I attach the picture about the output plug, please check it

### 2.3 PIN ASSIGNMENTS

INPUT:	Pin1:	Line(L)	OUTPUT:	Outside:	GND
	Pin2:	Neutral(N)		Inside:	+Vout

## 3 ELECTRICAL REQUIREMENTS

(Unless specified otherwise, all specifications are at nominal input voltage, full load, 25 °C, PSU at warmed up condition.)

### 3.1 INPUT

The operating conditions with respect to the AC input voltage are described in this section.

Energy consumption in NO-Load mode 1.2W

#### 3.1.1 INPUT VOLTAGE

The operating voltage range is 100V to 240VAC.

#### 3.1.2 INPUT CURRENT

When the input voltage is 90VA at 75W, then the max input current shall be less then1.5A.

#### 3.1.3 INPUT FREQUENCY

Input frequency range shall be 50/60Hz.

#### 3.1.4 INRUSH CURRENT

Maximum inrush shall be less then 50A at 240VAC.

#### 3.1.5 EFFICIENCY

The efficiency of the power supply is 84% nominal, Measured at Full Load and nominal AC Input voltage of 240VAC ,25 °C with the PSU warmed up, at output. O/P Cable drop of 0.3V~0.5 typical is removed for this calculation.

#### 3.1.6 POWER FACTOR

Input AC voltage connects to internal diode bridge rectifier and Filter,75W output load is >0.50

### 3.2 OUTPUT POWER

The operating conditions for the regulated DC output are described in this section.

#### 3.2.1 OUTPUT POWER

Depends on models, possible Max. Output power is 75W

### 3.2.2 OUTPUT VOLTAGE & OUTPUT CURRENT

The output voltage is adjustable by the micro-control inside, the output voltage is from 9 to 24V, and every current is limited.

9V	12V	13V	14V	15V	16V	17V	18V	19V	20V	21V	22V	23V	24V
5A	4.5A	4.5A	4A	4A	3.5A	3.5	3.5A	3.5	3A	3A	3A	2.5A	2.5A

### 3.2.3 LINE REGULATION

Regulation is measured by varying the line voltage from 100 ~ 240VAC, at full load.

Model	Output	Tolerance
All	+ Vout	<5%

### 3.2.4 LOAD REGULATION

Measured by varying the load current from MIN Load to FULL load at nominal AC input voltage. Measured at O/P power cord end. This measures output voltage variation of a unit due to load change and is indicative of design capability. The tolerance is measured with reference to the respective nominal voltage and expressed as percentage of nominal output voltage.

Model	Output	Tolerance
All	+ Vout	<5%

### 3.2.5 CROSS REGULATION

Measured at 50% load on output while any other output load changed by 50%.

ALL Models

### 3.2.6 OUTPUT RIPPLE AND NOISE VOLTAGE(PAPD)

Measured at full load, 100Hz bandwidth, with a 0.1uF Ceramic Cap and a 47uF Tant. Cap/E-Cap. Connected at the measurement point. The maximum PARD PK-PK ripple and noise is indicated below.

All the noise is <200mV

### 3.2.7 OUTPUT TRANSIENT RESPONSE

The load current of measured output is changed between 10% to 100% max load for all models, at 0.1A/sec slew rate, at 100/120Hz, 50% duty cycle. The recovery time and excursion is measured when the output voltage has recovered to within 1% of the load regulation band. Expressed as percentage of the nominal voltage. The recovery time to regulation <1ms and Max. excursion from regulation <3% when the all models nominal output voltage.

### 3.2.8 OUTPUT TRANSIENT RESPONSE

Long-term output voltage drift over 1000 hours of operation, at Vout is typically less than 0.5%.

### 3.2.9 OUTPUT OVERSHOOT

The overshoot voltage as a percentage of nominal output voltage at initial power up of the PSU, at 64W full load condition is indicated below. Measured with ref, to the O/P regulation band.

The output overshoot <5% when the all models nominal output voltage.

### 3.2.10 OUTPUT PROTECTION

The power supply load shall be protected against a fault condition described below.

### 3.2.11-1 OVERVOLTAGE

N/A

**3.2.11-2 OUTPUT SHORT CIRCUIT / OVERLOAD PROTECTION**

When the voltage is shorted,the power will be latched,and there is no output until the power supply restart again.

**3.2.12 OUTPUT RISE TIME**

The time taken by the output to rise from 10% to 90% of the final steady state value, should be as below.

The Max rise time<10ms, when the all models nominal output voltage.

**3.2.13 TURN-ON DELAY**

The run-on delay time, from the time AC power is applied to the PSU till the O/P voltage is within the regulation band.Shall be less than 2 seconds at 100VAC. Cold start.

**3.2.14 OUTPUT HOLD-UP- TIME**

The power supply shall maintain the output within it`s voltage/current specification for more than 10ms. After any loss of AC input voltage. Measured at nominal input voltage of 100-240VAC and at point when output is crossing regulation band.

**3.2.15 REMOTE SENSE**

N/A

**3.2.16 POWER FALL / POWER GOOD SIGNAL**

N/A

**4 ENVIRONMENTAL REQUIREMENTS****4.1 TEMPERATURE**

Operating temperature range is -10 to 40 at the respective rated output power,with free air convection. Surface temperature shall be less than 70 at 25 operating temperature. Non-operating range: -40 to 85 .

**4.2 ALTITUDE**

Maximum operating altitude: 10,000 feet. Maximum Non-operating altitude: 40,000 feet.

**4.3 HUMIDITY**

Non-condensing relative humidity range: 5% to 95%.

**4.4.1 VIBRATION**

The power supply shall meet operating, non-operating and package vibration,

Vibration	frequency	acceleration	tow time	cycle
Operating	5-500Hz	0.5G	15min,xyz all 15min	2
Non-operating	5-500Hz	1G	15min,xyz all 15min	2
Package	5-500Hz	1.5G	15min,xyz all 30min	2

**4.4.2 SHOCK**

The power supply shall meet operating and non operating shock. On floorboards thick for 10mm wood block.

Shock	height	direction	cycles
Operating	0.3m	xyz all 3 times	6
Non-operating	1.0m	xyz all 3 times	6

**4.5 INPUT TRANSLENT SUSCEPTIBLLITY**

The unit shall comply with requirements of IEC 1000-4-2, IEC 1000-4-4 and IEC 1000-4-5, will withstand ESD of 8K. Contact Discharge, will withstand ESD of 12K Air Discharge, 10 strides, both +ve and -ve, as per IEC 1000-4-2.



**4.6 AC-LINE INPUT INRUSH NOISE**

Minimum dielectric AC-line inrush voltage noise: Between AC input L to N:

Inrush noise	Tr /Td	Voltage	Phase	time	cycles
Operating	1.2us/50us	2.0KV	0 °	1min	10
			90 °		10
			270 °		10
			360 °		10

**4.7 THERMAL SHUTDOWN**

When the temperature of transform reach 120 , the power supply shutdown.

**5 SAFETY REQUIREMENTS****5.1 DIELECTRIC WITHSTAND VOLTAGE**

Minimum dielectric voltage: Between input to output: 3000VAC/1 minute. Leakage current shall be 5mA maximum. ( 3500VAC/2s. Leakage current shall be 5mA maximum. )

**5.2 LEAKAGE CURRENT**

Maximum leakage current form primary to secondary shall be 0.25mA. Minimum voltage 240VAC

**5.3 INSULATION RESISTANCE**

Minimum insulation resistor from primary to secondary shall be 100M . Voltage DC 500V.

**5.4 SAFETY SPACINGS**

6.0mm minimum between primary and secondary.

**5.5 SAFETY STANDARDS APPROVAL**

The power supply will meet Class , SELV of the following safety agency requirements

**5.6 Reliability**

MTBF@ 25 shall be 50,000 hours min.

**6 EMI REQUIREMENTS**

EMI STANDARD: EN55022 CLASS B, EN6100-3-2.3, FCC CLASS B

**6.1 CONDUCTION**

The adapter will conform to FCC PART15 Class B, VICC Class B, and CISPR Pub.13 Class B.

**6.2 RADIATION**

The adapter will conform to FCC PART15 Class B, VICC Class B, and CISPR Pub.13 Class B.

**7. RoHS Compliant****8. Size : 132x60x39mm , as following drawing .**

