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SPECIFICATION

NB PLUS (Slim Adapter)

Main Feature:

Slim Size

High Efficiency

Universal Output Voltage

LCD Voltage Monitor

Full Range Input

5V USB Charger

Nov 3,2006

REV:1:00



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MODEL: NB PLUS

Revision History

<u>Rev</u>	<u>Description</u>	<u>Date</u>	<u>Author</u>
1.00	Original	2006/11/3	Arpin
1.01	Add USB description and output rating	2007/08/01	Michael
1.02	Modify USB output rating 2A to 1A and protect description And ripple & noise test condition. Delete 24V output. Modify operate temperature.	2007/10/17	Michael
1.03	1.Modify output watt that total power is 65w . 2. abrogate the derate	2008/1/3	sky
1.04	The maximum load of each voltage output as above table.	2008/1/28	sky
1.05	Add EFFICIENCY with USB	2008/3/3	sky

1. GENERAL DESCRIPTION AND SCOPE

This is the specification of Model NB PLUS; AC-line powered switching power supply with Full Range Input features and universal output voltage application.

The specification below is intended to describe as detailedly as possible the functions and performance of the subject power supply. Any comment or additional requirements to this specification from our customers will be highly appreciated and treated as a new target for us to approach.

2. REFERENCE DOCUMENTS

The subject power supply will meet the EMI requirements and obtain main safety approvals as following:

2.1 EMI REGULATORY

- FCC Part 15 Subpart J, Class 'B' 115 Vac operation.
- CISPR 22 Class 'B' 230 Vac operation.

2.2 SAFETY

- TUV EN60950 OR VDE EN60950
- IEC 60950
- UL/cUL 60950
- CE :

3. INPUT ELECTRICAL SPECIFICATIONS

3.1. AC INPUT

Parameter	Min.	Nom. ⁽¹⁾	Max.	Unit
V _{in} (115VAC)	100	115	135	VAC _{rms}
V _{in} (230VAC)	180	230	265	VAC _{rms}
V _{in} Frequency	47	--	63	Hz

◆ Nominal voltages for test purposes are considered to be within $\pm 1.0V$ of nominal.

3.2. INRUSH CURRENT

(Cold start – 25 deg. C)

115V	No damage
230V	No damage

Maximum inrush current from power-on (with power on at any point on the AC sine) and including, but not limited to, three line cycles, shall be limited to a level below the surge rating of the input line cord, AC switch if present, bridge rectifier, fuse, and EMI filter components. Repetitive ON/OFF cycling of the AC input voltage should not damage the power supply or cause the input fuse to blow.

3.3. INPUT LINE CURRENT

115V	2.0Amps – rms maximum
230V	1.0Amps – rms maximum

3.4. EFFICIENCY

- 80% at the condition of main power with USB output loaded full load and nominal voltage input.

3.5 MECHANICAL SPECIFICATIONS

The mechanical drawing of the subject power supply, which indicate the form factor, location of the mounting holes, location, the length of the connectors, and other physical specifications of the subject power supply. Please refer to the attachment drawing.

4.0. OUTPUT ELECTRICAL REQUIREMENTS

The power supply provide the function of universal and variable output voltage that controlled by Touch-switch.

4.1 OUTPUT VOLTAGE AND CURRENT RATING

USB output Main power	5V(0A)		5V(1A)		LOAD REG	LINE REG.	Max. Total Power	RIPPLE&NOISE		Maximum Output Peak Power
	Min. LOAD	Max. LOAD	Min. LOAD	Max. LOAD				Main power	USB output	
+15V	0A	4A	0A	3.66A	±5%	±1%	60W	240mV P-P	80mV P-P	80W
+16V	0A	3.75A	0A	3.43A	±5%	±1%		240mV P-P	80mV P-P	
+18V	0A	3.6 A	0A	3.33 A	±5%	±1%		240mV P-P	80mV P-P	
+19V	0A	3.42A	0A	3.15A	±5%	±1%	65W	240mV P-P	80mV P-P	90W
+20V	0A	3.25A	0A	3A	±5%	±1%		240mV P-P	80mV P-P	
+21V	0A	3.09A	0A	2.85A	±5%	±1%		240mV P-P	80mV P-P	

Notes:

1. Ripple & Noise test : Use 20 M Hz band width frequency oscilloscope.
2. Add 0.1uF Ceramic Cap. and 50V / 47uF Aluminum Cap. at output connector terminal for Ripple & Noise test.
3. Ripple Noise test condition: Max. load
4. The maximum load of each voltage output can not exceed the definition as above table.
5. Maximum Output Peak Power:
 - (1) For output voltage of 15V, 16V and 18V, maximum peak power is 80W for 20 sec at nominal voltage input (100~240V)
 - (2) For output voltage of 19V, 20V and 21V, maximum peak power is 90W for 20 sec at nominal voltage input (100~240V)

4.3. HOLD-UP TIME (@FULL LOAD)

115V / 60Hz : 5 mSec. Minimum.

230V / 47Hz : 5 mSec. Minimum.

The output voltage will remain within specification, in the event that the input power is removed or interrupted, for the duration of one cycle of the input frequency. The interruption may occur at any point in the AC voltage cycle. The power good signal shall remain high during this test.

4.4.OUTPUT RISE TIME

< 20mS at the condition of 10% TO 90% OF NOMINAL OUTPUT VALUE @ FULL LOAD

4.5.OVER VOLTAGE PROTECTION

The power supply unit shall shutdown before the output voltage reaching 30V when the

abnormal condition happened.

4.6.OVER CURRENT PROTECTION

The output will shutdown and auto-recovery before the output current reaching 7A.

4.7.SHORT CIRCUIT PROTECTION

Output short circuit is defined to be a short circuit load of less than 0.1 ohm.

5.0 ENVIRONMENTAL REQUIREMENTS

The power supply will be compliant with each item in this specification for the following Environmental conditions.

5.1. TEMPERATURE RANGE

Operating	0 to +35 deg. C
Storage	-20 to +70 deg. C

5.2. HUMIDITY

Operating	5 –95% RH, Non-condensing
Storage	5 –95% RH, Non-condensing

5.3. VIBRATION

The subject power supply will withstand the following imposed conditions without experiencing non-recoverable failure or deviation from specified output characteristics.

Vibration Operating – Sine wave excited, 0.25 G maximum acceleration, 10-250 Hz swept at one octave / min. Fifteen minute dwell at all resonant points, where resonance is defined as those exciting frequencies at which the device under test experiences excursions two times large than non-resonant excursions.

Plane of vibration to be along three mutually perpendicular axes.

5.4 GROUND LEAKAGE CURRENT

The power supply ground leakage current shall be less than 1.0 mA.

5.5 RELIABILITY

The power supply reliability, when calculated by MIL-HDBK-217; latest revision, are exceed 100,000 hours with all output at maximum load and an ambient temperature of 25°C.

5.6 DIELECTRIC STRENGTH

Primary to Secondary : 3000Vac for 1 sec

5.7 INSULATION RESISTANCE

Primary to Secondary : 20 Meg.ohms Minimum

6.0. LABELLING

Label marking will be permanent, legible and complied with all agency requirements.

6.1. MODEL NUMBER LABEL

Labels will be affixed to the sides of the power supply showing the following:

- Manufacturer's name and logo.
- Model no., serial no., revision level, location of manufacturer.
- The total power output and the maximum load for each output.
- AC input rating.

7.0. Mechanical Outline Drawing

7.1 Size=155(L) * 75(W) * 16.8(H) unit: mm