

SPARKLE POWER INC.



R-FSP065-21UAN0 (15V~21V)

**With USB output
LCD display
Adapter Power Supply**

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11/3/2006

1. GENERAL DESCRIPTION AND SCOPE

This is the specification of Model FSP065-21UAN0; 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 | |
|--------------------------|--------------|--------------|--------------|--------------|-------------|--------------|------------------------|--------------|------------|
| | 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 |
| +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% | 65W | 240mV P-P | 80mV P-P |
| +19V | 0A | 3.42A | 0A | 3.15A | ±5% | ±1% | | 240mV P-P | 80mV P-P |
| +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 excess the definition as above table.

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

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