

## SPU16A series

V3.0

The SPU16A series of AC/DC switching mode power supplies provide 15 Watts of continuous output power. All supplies are UL 94V-1 min compliant. All models meet FCC Part-15 class B and CISPR-22 class B emission Limits and are designed to comply with UL/c-UL, TUV/GS and CE marking conformity assessment. All units are 100% burned in and tested.

**RoHS2**  
2011/65/EU



## 15W External Power Supply for General Purpose

### FEATURES:

- \* Wide Operating Voltage 90 to 264 VAC, 47 to 63 Hz
- \* IEC-320-C14 Input Inlet
- \* Optional Output Connector (See page appendix)
- \* Single Output
- \* Class I system
- \* CoC v5 (tier2)
- \* 3 year warranty

### APPLICATIONS:

- \* Ethernet Hub
- \* Portable Devices
- \* Charger
- \* Monitor
- \* Set-top Box
- \* AV Equipment

### GENERAL SPECIFICATION:

- \* **Short Circuit Protection:** Auto Recovery
- \* **Cooling:** Free Air Convection
- \* **Flammability Rating:** UL94V-1
- \* **Protection Classes:** Class I
- \* **Safety:** UL 60950-1:2nd Edition, IEC 60950-1:2005 /A2:2013, EN60950-1:2006 /A2:2013, CSA C22.2 No.60950-1-07

### APPROVALS:



### Electrical Characteristics:

| Symbol | Characteristic                        | Condition  | Min.             | Typ. | Max.  | Unit  |
|--------|---------------------------------------|--|------------------|------|-------|-------|
| Vins   | Safety Approval Input Voltage Range   | Safety Approval & Specification in Label             | 100              |      | 240   | VAC   |
| Vin    | Input Operate Voltage Range           | Detail to see Fig.1                                  | 90               |      | 264   | VAC   |
| Fi     | Input Frequency                       | Sine wave  | 47               |      | 63    | Hz    |
| Po     | Output Power Range                    | See Rating Chart                                     |                  |      | 15    | W     |
| Iil    | Low Line Input Current                | Full Load, Vin=100VAC                                |                  | 0.4  |       | A     |
| Iih    | High Line Input Current               | Full Load, Vin=240VAC                                |                  | 0.16 |       | A     |
| Irl    | Low Line Input Inrush Current         | Full Load, 25°C, Cool start, Vin=100VAC              | 35               |      | 45    | A     |
| Irh    | High Line Input Inrush Current        | Full Load, 25°C, Cool start, Vin=240VAC              | 70               |      | 90    | A     |
| Ik     | Safety Ground Leakage Current         | Vin=240VAC, Fi=60Hz                                  |                  |      | 0.75  | mA    |
| η      | Efficiency                            | Full Load, Vin=230VAC, Detail to see Rating Chart    | See Rating Chart |      |       |       |
| ΔVoi   | Line Regulation                       | Full Load, Vin=100~120VAC                            | 0.5              |      | 1     | %     |
| ΔVoL   | Load Regulation                       | Vin=230VAC, 10~90% Load Change at Condition          | 3                |      | 7     | %     |
| OLP    | Over Load Protection                  | Nil.But,Output protected to short circuit conditions |                  |      |       |       |
| ttr    | Time of Transient Response            | Io=Full Load to Half Load, Vin=110VAC                |                  |      | 4     | ms    |
| thu    | Hold-Up Time                          | Full Load, Vin=100VAC                                | See Rating Chart |      |       |       |
| ts     | Start-up time                         | Full Load, Vin=100~240VAC                            |                  |      | 2     | s     |
| Tc     | Temperature Coefficient               | Full load, Vin=100~240VAC                            |                  |      | ±0.04 | %/°C  |
| HV     | Dielectric Withstanding Voltage (P-S) | Primary to Secondary                                 |                  |      | 4242  | VDC   |
| Vpg    | Dielectric Withstanding Voltage (P-G) | Primary to PE  |                  |      | 2121  | VDC   |
| EMI    | EMC Emission                          | Compliance to EN55022 (CISPR22)                      |                  |      | B     | Class |

### Environmental:

| Symbol | Characteristic                 | Condition  | Min. | Typ. | Max. | Unit |
|--------|--------------------------------|--|------|------|------|------|
| To     | Operating Temperature          | Detail to see Fig.2 (Derate linearly from 100% load at 40°C to 50% load at 70°C) | 0    |      | 70   | °C   |
| Ts     | Storage Temperature            | 10 ~ 95% RH  | -40  |      | 85   | °C   |
| Ho     | Operating Humidity             | non-condensing   | 0    |      | 95%  | RH   |
| Hs     | Storage Humidity               |  | 0    |      | 95%  | RH   |
| ESDa   | Electro Static Discharge       | Air Discharge, IEC61000-4-2  |      |      | 8    | kV   |
| ESDc   | Electro Static Discharge       | Contact Discharge, IEC61000-4-2  |      |      | 4    | kV   |
| MTBF   | Mean Time Between Failure      | Operating Temperature at 25°C, Calculated per MIL-HDBK-217F                      | 100k |      |      | h    |
| ELEV   | Operating Altitude (Elevation) | All condition  |      |      | 2000 | m    |
| VBR    | Vibration                      | 10 ~ 500Hz, 10min./1cycle, 60min. each along X, Y, Z axes                        |      |      | 5    | G    |
| Vsl    | Surge Voltage                  | Line-Neutral   |      |      | 1    | kV   |
| Vsg    | Surge Voltage                  | Line-PE & Neutral-PE   |      |      | 2    | kV   |

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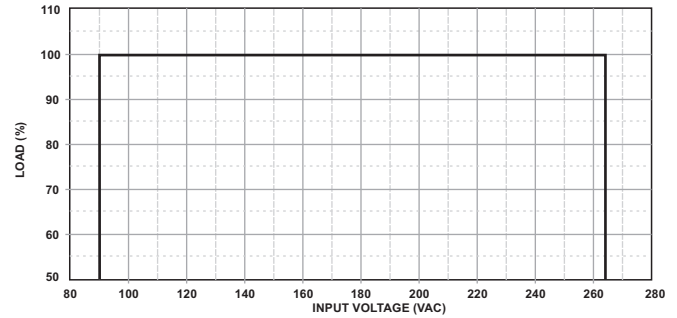
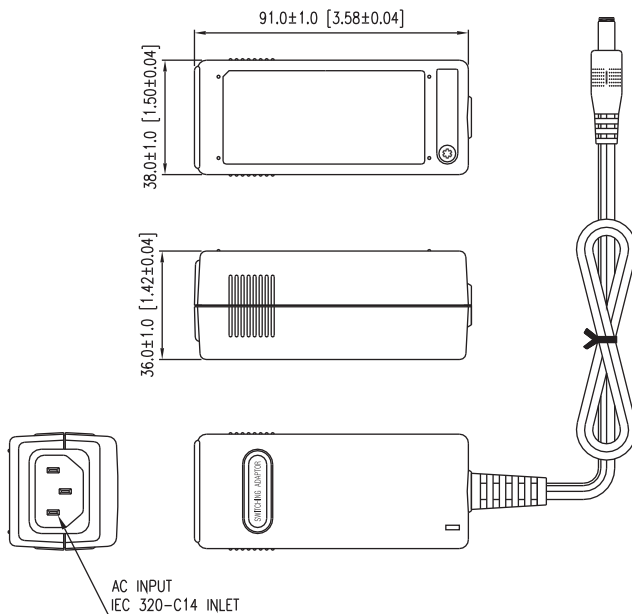
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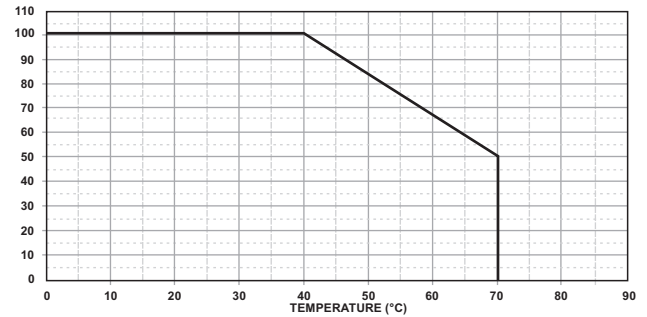
### SPECIFICATION NOTE :

- Output can provide up to peak load when the power supply starts up. Continuous staying in more than rated load is not allowed.
- At factory, in 60% rated load condition, each output is checked to be within voltage accuracy.
- Line regulation is defined by changing  $\pm 10\%$  of input voltage from nominal line at rated load.
- Load regulation is defined by changing  $\pm 40\%$  of measured output load from 60% rated load.
- Ripple & noise is measured by using 20MHz bandwidth limited oscilloscope and terminated each output with a 0.47uF capacitor at rated load and nominal line.
- Hold up time is measured from the end of the last charging pulse to the time which the main output drops down to low limit of main output at rated load and nominal line.
- Efficiency is measured at rated load, and nominal line.

### MECHANICAL DIMENSIONS: ( UNIT: mm )



(FIG.1) INPUT VOLTAGE DERATING CURVE



(FIG.2) TEMPERATURE DERATING CURVE

### OUTPUT CABLE RECOMMEND :

- Selected output connectors and wire, please refer to Appendix.
- SPU16A-102~104 are required to use AWG#16/4FT output cable.
- SPU16A-105~108 are required to use AWG#18/4FT output cable.
- SPU16A-109~111 are required to use AWG#20/4FT output cable.
- The regulation and efficiency will be changed by modified output cable.

### PACKING :

- Net weight: 165g approx.
- Optional output connectors available contact sales for details.

### Rating Chart:

| MODEL NO.  | Setting Voltage Range<br>(Factory setting, can't be adjusted) |       | Output Current<br>(Based on the output volt.) |      | Maximum<br>Output Power<br>(W) | Ripple & Noise<br>(mVp-p) | Total Regulation<br>(%) | Typ. Efficiency<br>(%) | Typ. No Load<br>Consumption<br>(W) | Hold-Up Time<br>(ms) | Protection Mode |
|------------|---|-------|---|------|--------------------------------|---------------------------|-------------------------|------------------------|------------------------------------|----------------------|-----------------|
|            | min   | max   | min   | max  |                                |                           |                         |                        |                                    |                      |                 |
|            | (VDC)   | (VDC) | (A)   | (A)  |                                |                           |                         |                        |                                    |                      |                 |
| SPU16A-102 | 5.0   | 5.99  | 2.00  | 2.50 | 12                             | 100                       | ±5                      | 80.3                   | 0.075                              | 8                    | Hiccup          |
| SPU16A-103 | 6.5   | 8.0   | 1.50  | 1.84 | 12                             | 100                       | ±5                      | 83.3                   | 0.075                              | 8                    | Hiccup          |
| SPU16A-104 | 8.0   | 11.0  | 1.36  | 1.87 | 15                             | 100                       | ±5                      | 84.5                   | 0.075                              | 8                    | Hiccup          |
| SPU16A-105 | 11.0  | 13.0  | 1.15  | 1.36 | 15                             | 100                       | ±5                      | 84.5                   | 0.075                              | 8                    | Hiccup          |
| SPU16A-106 | 13.0  | 16.0  | 0.94  | 1.15 | 15                             | 100                       | ±5                      | 84.5                   | 0.075                              | 8                    | Hiccup          |
| SPU16A-107 | 16.0  | 21.0  | 0.72  | 0.94 | 15                             | 100                       | ±5                      | 84.5                   | 0.075                              | 8                    | Hiccup          |
| SPU16A-108 | 21.0  | 27.0  | 0.55  | 0.72 | 15                             | 120                       | ±5                      | 85                     | 0.075                              | 8                    | Hiccup          |
| SPU16A-109 | 27.0  | 33.0  | 0.45  | 0.55 | 15                             | 160                       | ±5                      | 85                     | 0.075                              | 8                    | Hiccup          |
| SPU16A-110 | 33.0  | 40.0  | 0.37  | 0.45 | 15                             | 230                       | ±3                      | 85.5                   | 0.075                              | 8                    | Hiccup          |
| SPU16A-111 | 40.0  | 48.0  | 0.31  | 0.37 | 15                             | 300                       | ±3                      | 86                     | 0.075                              | 8                    | Hiccup          |