



STARMEN

STARMEN OPTO-ELECTRONICS CO.,LTD

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TCS060120 Specification

1. General

This specification defines the performance characteristics of Class , 12V/5A single output AC-DC adapter. This specification also defines the worldwide safety requirements and EMC requirements.

2. Input Characteristics

a. AC Input Voltage

The adapter will operate over the entire input voltage range (90-264V_{AC}).

Minimum	Maximum	Nominal/Rated
90 V _{AC}	264 V _{AC}	110/220 V _{AC}

b. Frequency

The input frequency range will be 47Hz to 63Hz.

c. Input Current

The input current will not exceed 1.6Amp(rms.) for 90 V_{AC}.

d. Efficiency

The adapter efficiency (watts output/watts input) will not be less than 80% typically at full load condition.

e. Hold Up Time

The output hold up time (measured at the 90% point of normal voltage output) will be guaranteed 8msec at test condition which is full load, 115 V_{AC} /60Hz, normally line, 25 ambient temperature.

3. Output Characteristics

a. DC Load Characteristics

Output Voltage	Load (Amperes)	Regulation Tolerance	Maximum Current
12.0V	5.0A	±5%	5.0A

The adapter output voltage is 11.4V_{min}~12.6V_{max} at 0~5.0A load.

The adapter accepts tolerance that is 6A ±1A overload.

b. Ripple & Noise

The adapter ripple & noise will be less than 120mV.

Note: A0.1 μ F Ceramic and 10 μ F Tantalum capacitors should be put across output terminals during ripple & noise test. The oscilloscope bandwidth is set at 20MHz and co-axial probe will be used to measure it. The test condition is max. load and normally line.

c. Overshoot

The adapter use in overshoot at turn on or turn off AC input will be less than 10% of the nominal value and will decay itself within the regulation band in less than 50m sec.

4. Protection:

a. Primary (Input) Protection

The input power line will be fused with a fuse 2.0A, 250 V_{AC}.

b. Secondary (Output) protection

b.1. Over Current Protection

When an internal fault occurs, or an external fault is applied to the adapter, such that an overload or short circuit is applied to the output, the adapter will be shutdown. Adapter latch is not allowed.

b.2 Over Voltage Protection

If an over-voltage fault occurs on the adapter output, the adapter will shutdown before the output exceeds 16.0V. Adapter latch is not allowed.

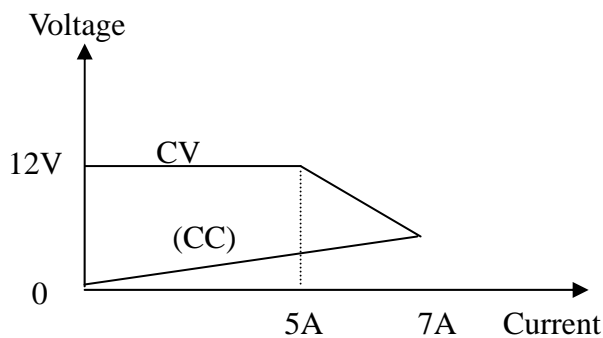
The occurrence of an over-voltage on the output and the subsequent shutdown will not cause damage to the adapter.

b.3 Short Circuit Protection

The adapter will protect itself, and shut down, if a short circuit is placed between DC return and the output. This condition will cause no damage to the adapter. Adapter latch is not allowed.

5. CV & CC Output Characteristics:

Following is summary of output characteristics.(115 V_{AC} or 230 V_{AC})



6. Power Supply Sequencing

a. AC Power On

When proper AC power is applied, the output will reach its regulation limits within 2.0 second at 110VAC.

b. Output Rise Time

The output rise time (measured from the 10% point to the 90% point on the waveform) will be greater than 1m sec and less than 20m sec.

7. E.M.I.

a. Conduction

The adapter will conform to FCC Class B, VCCI Class B, and CISPR Class B.

b. Radiation

The adapter will conform to FCC Class B, VCCI Class B, and CISPR Class B.

8. Safety Characteristics

a. Safety Meet Requirements

UL : UL60950 Third Edition & UL6500

cUL : CSA 22.2 No.60950 & E60065

TUV : EN60950 & EN60065

CB : IEC60950 & IEC60065

C-Tick : AS/NZS60950.1.2003

b. Withstand Voltage

Primary to secondary : 1500V_{AC} 10mA for 3 seconds.

c. Provisions for Protective Earthling

While 12V/25A applied on between primary and secondary side together and provisions for protective earthling is less than 0.1 ohm for 3 seconds.

d. Inrush Current

The adapter inrush current is less than 60A(peak to peak) at the time of cold start at 230 V_{AC} Condition.

9. Environment

a. Operating

The adapter operating temperature is 0 to 40 .

The adapter operating relative humidity is 20% to 85%.

b. Storage

The adapter storage temperature is -40 to 70 .

The adapter storage relative humidity is 10% to 95%.

10. Life

a. On – off Life

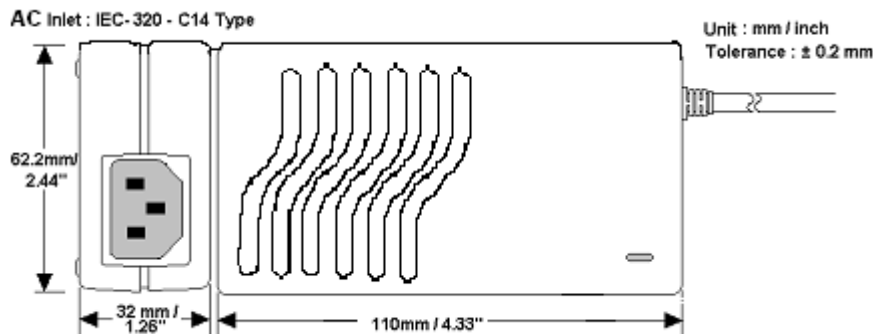
To verify the power supply withstand 10,000 time on-off repetition of primary power Without failure or damage at 90 V_{AC} input.

b. Operational life

The adapter will be designed for a minimum life of 50,000 power-on hours at 25 °C Ambient temperature, at full load condition.

11. Dimension

L 110 mm x W 62.2 mm x H 32 mm. (Tolerance : ± 0.2 mm)



12. Note

- a. This product and its' components have been assembled and manufactured accordingly in a lead-free production process.
- b. All components of this product hold SGS certifications, as accordingly to RoHS implementation.