SUBJECT: SCOPE OF DOCUMENT

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1-0. General Description

The purpose of the document is to specify a Single phase AC input, single output switching power supply. This specification is suitable for: EA11011M Series

This product is AC to DC switching power transfer device, it can provide for a 24V, 5A max & 120W max DC output with constant voltage source.

This Specification defines the input, output, performance characteristics, environment, noise and safety requirement for a power supply.

2-0. Input Requirements

2-1.AC Input Voltage

Maximum Voltage: 264Vac

Normal Voltage : 100~240Vac

Minimum Voltage: 90Vac

2-2. AC Input Frequency

Maximum Frequency: 63Hz

Normal Frequency: 50~60Hz

Minimum Frequency: 47Hz

2-3. Input Current

a. 2.0A(Max.) @ 115Vac input with full load.

b. 1.5A(Max.) @ 230Vac input with full load.

2-4. Energy saving standards:

2-4-0. Designed to meet the following standard :

CoC Tier2

2-4-1.Efficiency

Efficiency ≧ 89% (avg.) normal input & 25%, 50%, 75% ,100% of max output load

Efficiency ≧ 79% normal input & 10% of max output load

2-4-2 No Load Power Consumption.

No Load Watt ≦ 0.15W at normal line input.

2-5. Configuration

3-wire AC input (Line , Neutral, FG)

2-6. Input Fuse

The hot line side of the input shall have a fuse, rating (3.15A/250V)

2-7. Inrush Current

≦ 60A at 110 Vac At cold start, maximum load.

≦ 120A at 220 Vac At cold start, maximum load.

2-8. Line Regulation

This line regulation is less than ± 1%, of rated input voltage @ full load .

2-9. Hold Up Time

≧ 10 mSec., @ Normal line, with full load.

2-10. Rise Time

≦50 mSec.,@ 100-240VAC input, with full load from 10% to 90% of output voltage.

2-11. Turn-ON Time

The output voltage should rise to 90% of rated output voltage in less than 3 SEC. from AC apply to 110Vac start up.

2-12. Harmonic Standard and Power Factor

The adapter complied with IEC 61000-3-2 class D harmonic standard while input power over than 75W. The P.F. shall >0.95 @100Vac input and >0.9 @240Vac input.

3-0. Output Requirements

3-1. Output Voltage and Current

Output Voltage (Vdc)	Current Min.(A)	Current Max.(A)
+24V	0	5A

3-2. Load Regulation

Voltage (Vdc)	Tolerance (%)	Voltage range(Vdc)
+24V	+5/, -5	22.8V—25.2V

3-3. Dynamic Load Regulation

±5% excursion for 50% - 100% or 100% - 50% load change of DC output at any frequency up to 1KHz(duty 50%)

3-4. Ripple ＆ Noise

The power supply shall not exceed the following limits on the indicated voltage for 60Hz or 50Hz ripple, Switching frequency ripple and noise and dynamic load variations measured with a 20MHz bandwidth

Output	Ripple/Noise
+24V	1.5% max. of rated output voltage(P-PK)

Input condition : for rated voltage , Output condition : for max load

Ripple / Noise: 60Hz ripple + switching ripple and noise

Ripple & Noise are measured at the end of output cable which are added a 0.1uF ceramic capacitor and a 47uF electrolytic capacitor

3-5. Over Voltage Protection

150% Max. of rated voltage.

The output voltage shall be shutdown and latch-off when OVP occurred.

3-6. Over Current Protection

110%-170% of rated output current.

The adapter can withstand continuous short at DC output and no damage.

It will enter into normal condition if the fault condition is removed.

3-7. Stability

2% Max. at constant load with constant input (after 30 minutes of operation).

3-8.Temperature Rise

Less than 45℃ on top/bottom case at normal AC input & 80% load of DC output at environment temperature 25℃.

3-9. Drop-out (Power Line Disturbance)

Output voltage shall remain within the specified regulation range, through the absence of a line input during 1/2 cycle, at full load and normal AC line input

3-10. Voltage Isolation

The DC ground will be isolated from the AC neutral and AC line.

4-0.Reliability

4-1. MTBF (MIL-HDBK-217F)

The power supply shall be designed and produced to have a mean time between failure (MTBF) of 100,000 hours at 25 degrees C.

5-0. Environment

5-1 Temperature

a. Operating : 0 to 40 ℃

b. Storage : -20 to 85 ℃

5-2 Humidity

a. Operating : 10% to 90 %

b. Storage: 5% to 90 %

5-3 Altitude

From sea level to 5,000 Meter (operation) and 5,000 Meter (non operation

6-0. Safety

6-1. Hi-Pot Test

P-->S：3000Vac 5mA 2 Sec

L、N-->FG：1800Vac 5mA 2 Sec

6-2. Insulation Test

500Vdc, 3Sec. between primary and secondary circuit

IR should ≧ 50 MΩ.

6-3. Leakage Current

≦250uA at 264Vac/60 Hz

6-4. Safety

UL, CUL, TUV, CB, CE, FCC, CCC, RCM, BSMI, IRAM, PSE, CU

6-5. EMS

Items	Specification	Reference
ESD	Contact: ± 4KV	IEC 61000-4-2
	Air: ± 8KV	
RS	Frequency: 80~1000MHz Field Strength: 3V/M, 80% AM(1KHz)	IEC 61000-4-3
EFT	± 1KV on input AC power ports.	IEC 61000-4-4
SURGE	Line to Line: ± 1KV (peak)	IEC 61000-4-5
	Line to F.G : ± 2KV (peak)	

6-6. EMI

Comply with Standards
CISPR 32, EN 55032 Class B FCC Part 15

7-0. Mechanical Characteristics

7-1. Physical Size : 137mm (L) * 59 mm (W) * 34 mm (H)

7-2. Enclosure material : 94V-0 minimum

7-3. Output Cable (Reference) : UL118 #16

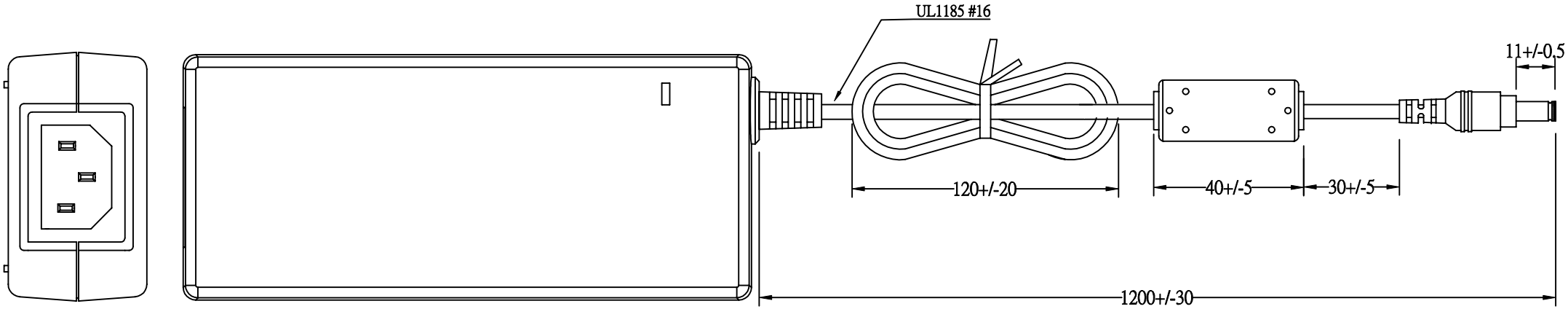
7-4. Vibration Test

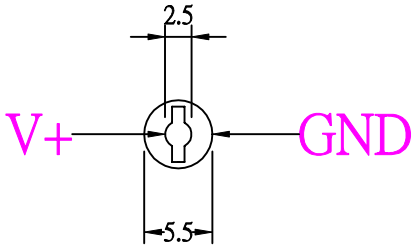
The vibration frequencies are set at 20Hz, with total amplitude of 1.5mm Along the 3 directions namely X-Y-Z. The each direction should be vibrated for 60 minutes, after testing no abnormal electrical or mechanical should occur.

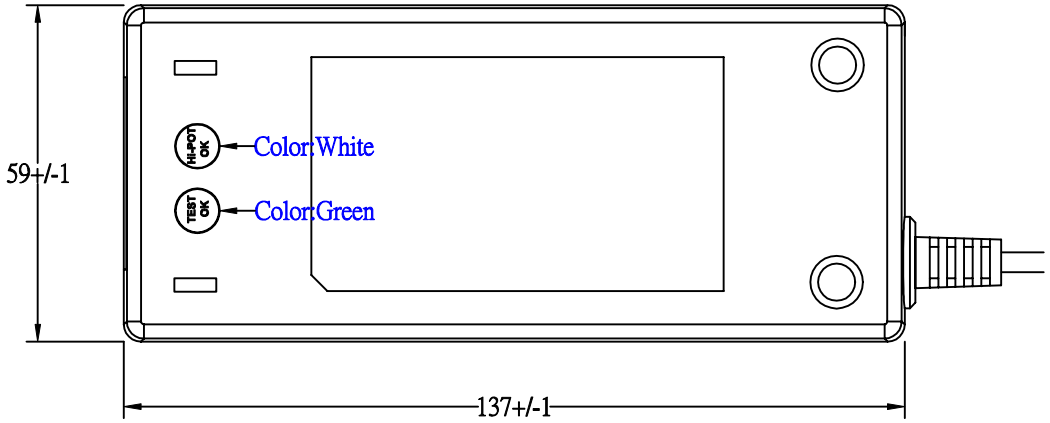
7-5. Drop Test (Referencing to CSA C22.2 No.950/UL1950/UL1310/EN62368)

Products shall be dropped from a height of 1000 mm onto a horizontal surface consists of hardwood at 13mm thick , mounted on two layers of plywood each 19mm to 20mm thick , all supported on a concrete or equivalent non-resilient floor. Upon conclusion of test , the equipment cannot into hazardous moving parts and hazardous voltage circuits need be operational , and need meet Hi-Pot specification requirement .

7-6. Net Weight (Reference) : 450 +/-10g







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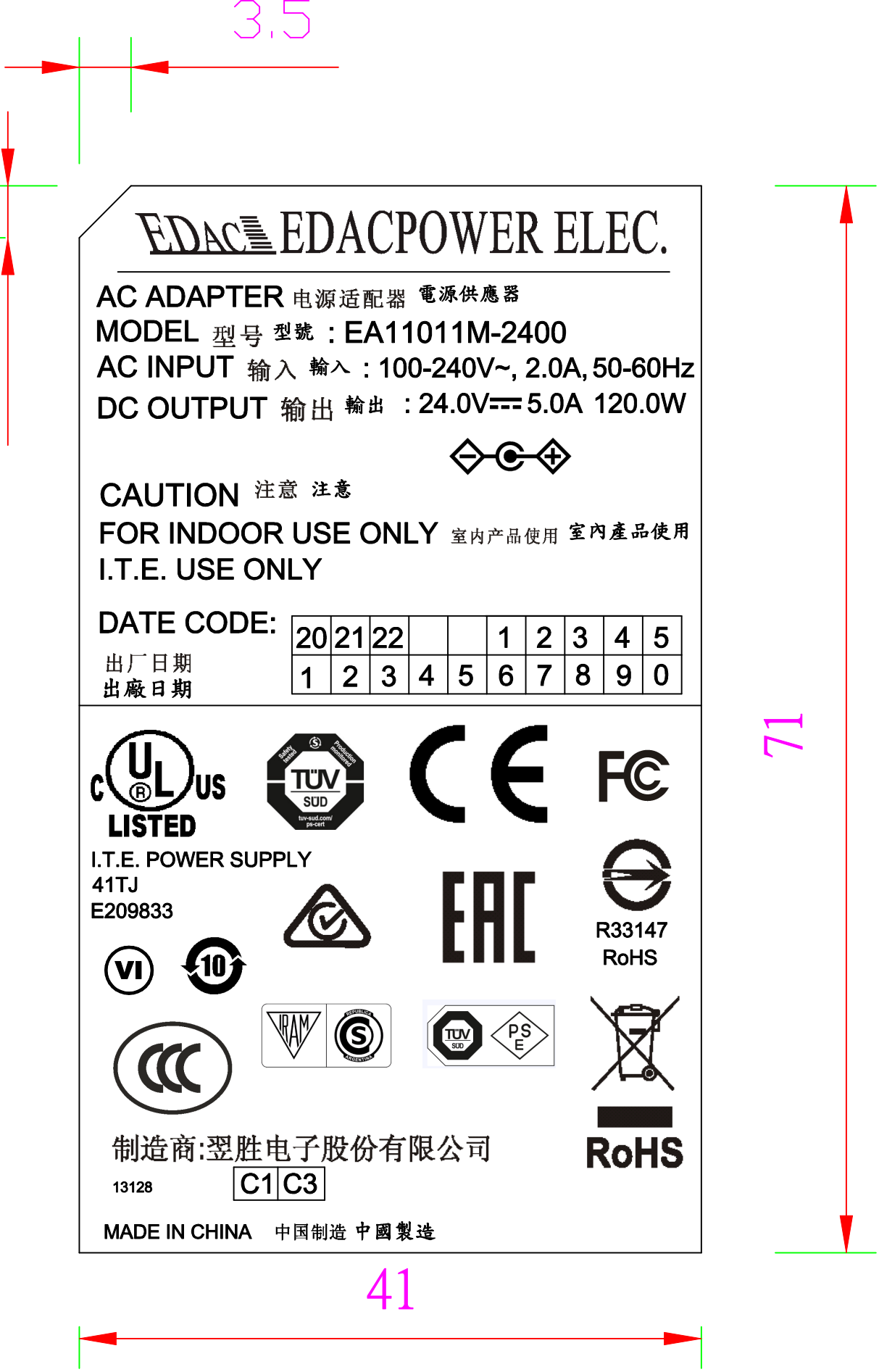

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