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: **EM1005AHUS Series**
This product is AC to DC switching power transfer device, it can provide for a **5V/1.2A max & 6W 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. Input Electrical Specification

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. 0.6A (Max.) @ 115Vac input with full load.
b. 0.3A(Max.) @ 230Vac input with full load.

2-4. Energy saving standards :

Designed to meet the following standard
Energy Efficiency level VI

2-4-1 Efficiency:

75.0% minimum at 115Vac/60Hz & 230Vac/50Hz input voltage and 25%, 50%, 75% & 100% of max output current. Meet CEC Level VI

2-4-2 No Load Power Consumption:

No Load Watt < 0.1W at 115Vac/60Hz & 230Vac/50Hz input voltage.

2-5. Configuration

2-wire AC input (**Line, Neutral)**

2-6. Input Fuse

The hot line side of the input shall have a fuse, rating (**T1A/250V**)

2-7. Inrush Current

≦ **30A** at 115 Vac

≦ **60A** at 230 Vac At cold start, maximum load.

2-8. Line Regulation

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

2-9. Hold Up Time

≧ **8.3mSec**., @ Normal line, with full load.

2-10. Rise Time

≦**50mSec**., @ Rated AC 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 100Vac from start up.

3-0. Output Requirements

3-1. Output Voltage and Current

Output Voltage (Vdc)	**Current Min.(A)**	**Current Max.(A)**
+5V	**0**	**1.2A**

3-2. Load Regulation

Voltage (Vdc)	Tolerance (%)	Regulation (Vdc)
+5V	**+5/, -5**	**4.75V~5.25V**

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
+5V	2.0% max. of rated output voltage

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

(Output clamped with zener diode, do not test with external DC source.)

3-6. Short-Circuit Protection

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 at 115Vac/50Hz & 230Vac/50Hz input voltage.

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 5,000Meter (operation) and (non operation)

6-0. Safety

6-1. Hi-Pot Test

4000Vac 5mA 2 second. between primary and secondary circuit

6-2. Insulation Test

500Vdc, 3 Sec. between primary and secondary circuit

IR should ≧ **50 MΩ.**

6-3. Leakage Current

≦**100uA** @ 240VAC 50Hz

6-4. Safety

UL, CUL, FCC

6-5. EMS

Items	Specification	Reference
ESD	Contact: ± 8KV	IEC 61000-4-2
	Air: ± 15KV	
RS	Frequency:80~2700MHz Field Strength: 10V/M, 80% AM(1KHz)	IEC 61000-4-3
EFT	+/-2.0 KV on input AC power ports.	IEC 61000-4-4
SURGE	Line to Line: ± 1KV (peak)	IEC 61000-4-5

6-6. EMI

Comply with Standards
EN 55011 Class B
FCC (PART 15 CLASS B)

7-0. Mechanical Characteristics

7-1. Physical Size : 55mm (L) * 25 mm (W) * 43 mm (H)

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

7-3. Output Cable (Reference) : UL2468 #22

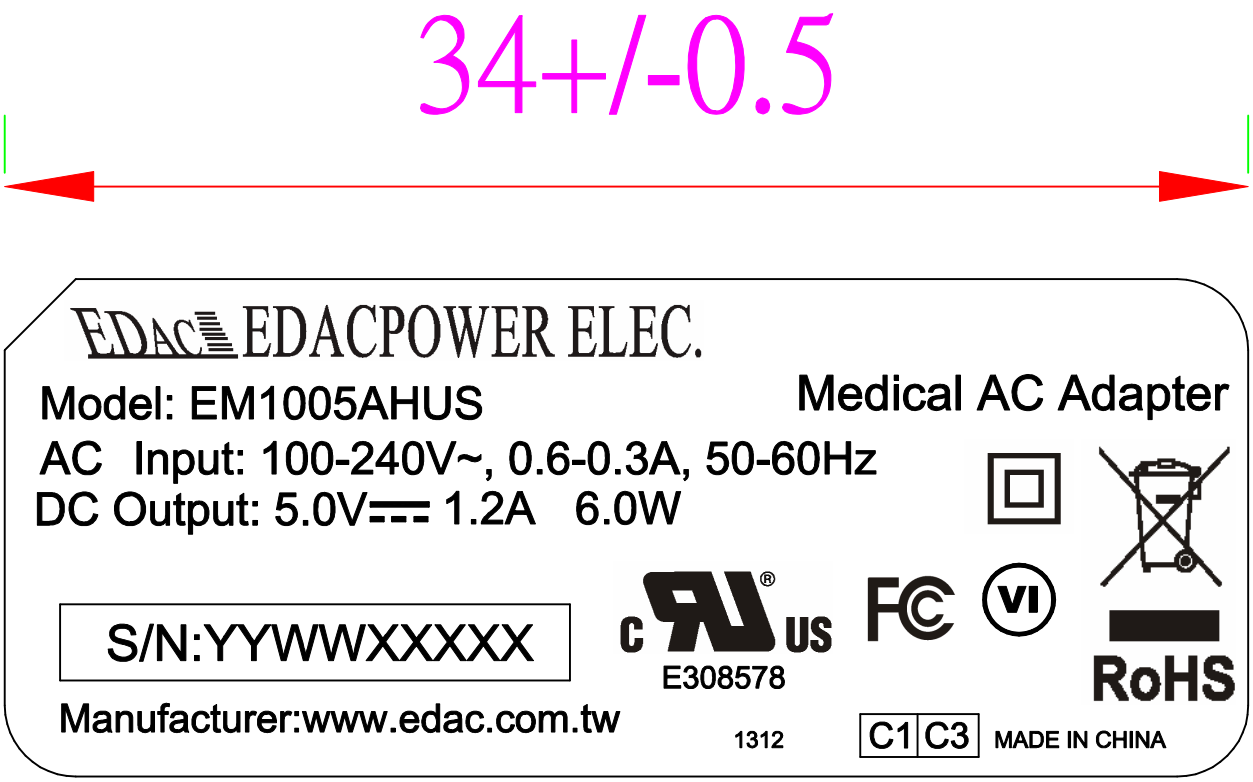
7-4. Vibration Test

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/EN60601)

Products shall be dropped from a height of 1000 mm onto a horizontal surface consists of hardwood board at 50+/- 5 mm thick , and lies flat on a concrete floor or a similar rigid base . The sample is dropped three times from each orientation in which it can be placed during normal use. There shall not be damage to the interior or exterior of the tested sample which caused exposure to live parts or increased risk of electric shock , and need meet Hi-Pot specification requirement .

7-6. Net Weight (Reference) : 70g

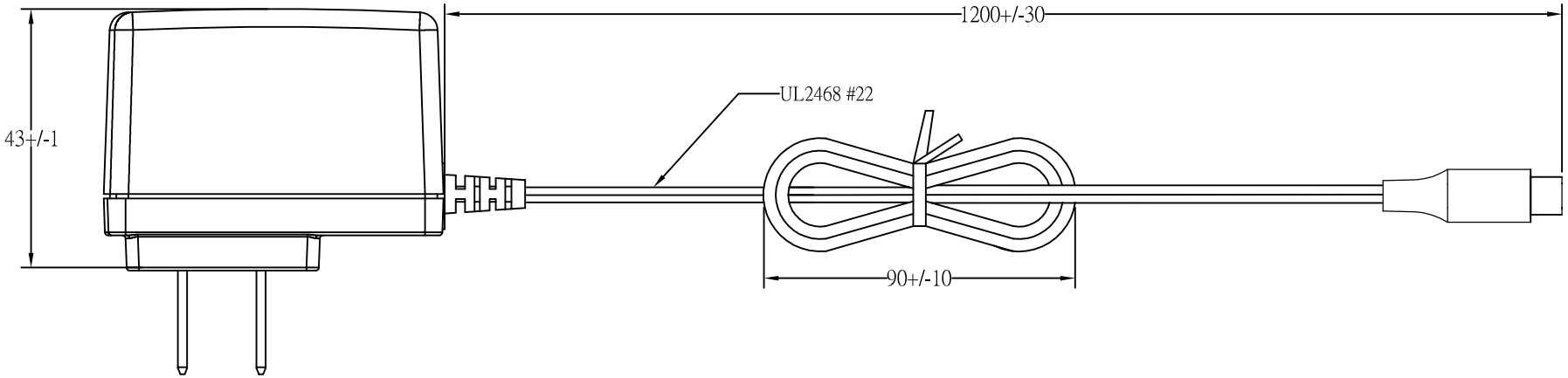


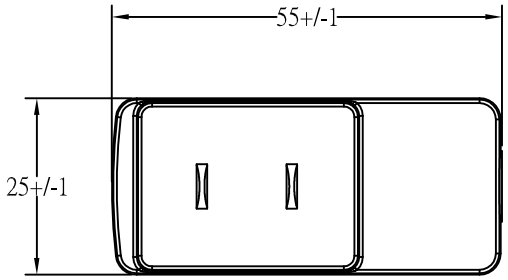
P/N.: 312

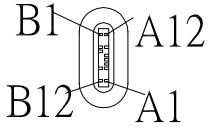
Background: Black color

Character: Silver color

Unit: mm







Connector:Pin-Outs
A4,A9,B4,B9:V+
A1,A12,B1,B12,Shell:GND

EDACPOWER ELEC.				APPROVED
MODEL	EM1005AHUS(25)	UNIT	mm	DESIGNED
color	Black	SCALE		CHECK
cus.		DATE	2020-09-18	DRAWING L.J.YU