

## **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: **EA1012AHES Series**

This product is AC to DC switching power transfer device,

it can provide for a **5V/2.4A max & 12W 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. **1A** (Max.) @ 115Vac input with full load.

b. **0.5A**(Max.) @ 230Vac input with full load.

### 2-4. Energy saving standards :

Designed to meet the following standard

CoC Tier II

#### 2-4-1 Efficiency:

80.3% minimum at 115Vac/60Hz & 230Vac/50Hz input voltage and 25%, 50%, 75% & 100% of max output current. Meet CoC Tier II.

71% minimum at 115Vac/60Hz & 230Vac/50Hz input voltage and 10% of max output current. Meet CoC Tier II

#### 2-4-2 No Load Power Consumption:

No Load Watt < 0.075W 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 (**T2A/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  $\pm 1\%$ , 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)
<b>+5V</b>	<b>0</b>	<b>2.4A</b>

### 3-2. Load Regulation

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

### 3-3. Dynamic Load Regulation

**$\pm 5\%$**  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% 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 Load Protection

180% Max. 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.

### 3-6. 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 °C on top/bottom case at normal AC input & 80% load of DC output at environment temperature 25 °C.

### 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 5,000Meter ( non operation )

## 6-0. Safety

### 6-1. Hi-Pot Test

4242Vdc 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

**250uA** @ 240VAC 50Hz

### 6-4. Safety

CB, CE, TUV

### 6-5. EMS

Items	Specification	Reference
ESD	Contact: $\pm 4KV$	IEC 61000-4-2
	Air: $\pm 8KV$	
RS	Frequency:80~1000MHz Field Strength: 3V/M , 80% AM(1KHz)	IEC 61000-4-3
EFT	$\pm 1.0 KV$ on input AC power ports.	IEC 61000-4-4
SURGE	Line to Line: $\pm 1KV$ (peak)	IEC 61000-4-5

### 6-6. EMI

Comply with Standards
CISPR 32,EN 55032 Class B FCC (PART 15 CLASS B)

## **7-0. Mechanical Characteristics**

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

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

**7-3. Output Cable (Reference) :** UL2468 #20

### **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) :** 70g

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R2\*3

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EDACPOWER ELEC.

AC Adapter  
Model: EA1012AHES  
AC Input: 100-240Vac, 1.0A, 50-60Hz  
DC Output: 5.0V  $\overline{=}$  2.4A 12.0W

CAUTION:  
FOR INDOOR USE ONLY  
I.T.E. USE ONLY

S/N:YYWWXXXXX

13128

MADE IN CHINA

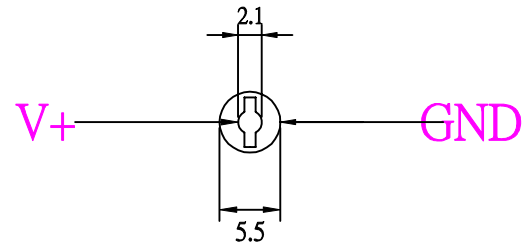
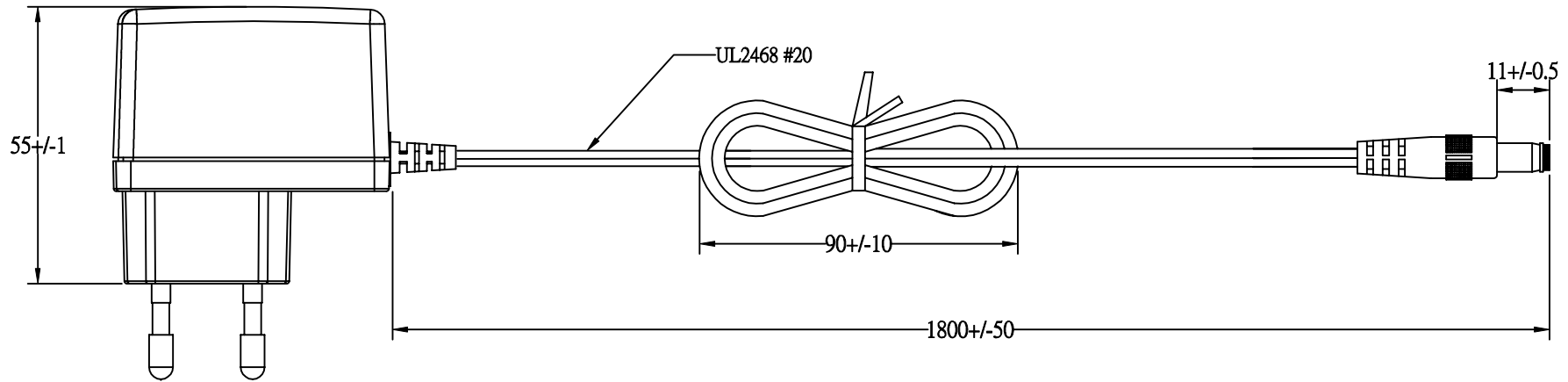
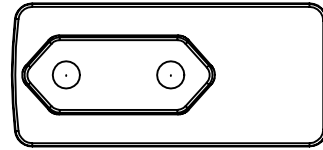
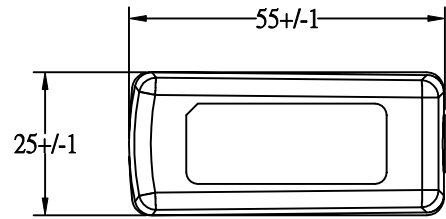
Logos: Safety symbols, TÜV SUD, CE, VI LPS, RoHS.

P/N.: 3128

Background: Black color

Character: Silver color

Unit: mm



EDACPOWER ELEC.				APPROVED
MODEL	EA1012AHES(T02)	UNIT	mm	DESIGNED
color	Black	SCALE		CHECK
cus.		DATE	2020-05-28	DRAWING L.J.YU