

2 Electrical Specification

2.1. Input requirement

Item	Minimum	Nominal	Maximum	Unit	Remark
Rated Input Voltage		100 / 240		Vac	
Input Voltage Range	90	/	264	Vac	
Rated Frequency		50 / 60		Hz	
Frequency Range	47	/	63	Hz	
Input Current		/	0.35	A	at100Vac/ 60Hz- at240Vac/ 50Hz
Input Inrush Current		/	60	A	Cool Start 230Vac
Power Consumption		/	0.075	W	No Load

2.2. Output requirement

2.2.1 Output voltage and current

Rated output voltage (V)	Voltage range (V)	No load (A)	Min.load (A)	Rated load(A)	Max. load (A)	Rated output power(W)	Note
12	11.40 ~ 12.60	0	0	1	*	12	

The power supply output voltage must stay within the limits specified in table 2 when operating at steady state.

2.2.2 Ripple and Noise

Ripple and Noise are tested by dc loading side parallel with a 47uF/E-CAP and 0.1uF/ C-CAP and with 20MHz Band-Width,the result must be less than 120mV

2.2.3 Average Efficiency

The average efficiency is larger than 83.26% which is at 115Vac/60Hz and 230Vac/50Hz with 100%,75%,50%,25% rated load.and the efficiency is larger than _____,which is at 10% rated load .This result comply with the _____

2.2.4 Line regulation

The line regulation of rated output voltage is less than ±5% while measuring at rated load and +/-10% of input voltage changing.

2.2.5 Load regulation

The load regulation of rated output voltage is less than ±5% at measured output load from 10% to 100% rated load .

2.2.6 Turn on delay time

At nominal input AC voltage and full load, it must less than 3S

2.2.7 Rise time

The Supply shall have a start-up rise time of less than 100mS within regulation limits for all DC outputs.

2.2.8 Hold up time

At nominal input AC voltage and full load, it must larger than 20mS

2.2.9 Overshoot and undershoot

The output voltage over/undershoot upon the application or removal of the input voltage, under the input conditions specified in Section 2.1, shall be less than ±10% ,above the nominalvoltage. No voltage of opposite polarity shall be present on output during turn-on or turn-off.

2.2.10 Dynamic response

The output voltage must between ±5% 20% to 80% load and back to20% with a 0.15A/msec slew rate.

2.3 Protection Characteristics

2.3.1 Over current protection

The output shall be protected against the over current conditions. A power cycle shall be required to restore normal operation. The output current is less than 2.5A at 100-240Vac.

2.3.2 Over voltage protection

The output voltage shall be clamped by / at full load and no load with rated input voltage.

2.3.3 Short circuit protection

The power supply shall have self-limiting protection. This protection can withstand a continuous output short without damaged, and auto-recovery operation after the short is removed.

2.4. Environmental Condition

2.4.1 Temperature

Operating Temperature: [-0+40°C](#)

Storage Temperature: [-30+70°C](#)

2.4.2 Humidity

Operating Humidity [10%+ 90%](#)

Storage Humidity [10%+90%](#)

2.4.3 Altitude

Operating Altitude: [2,000M \(Max\)](#)

Storage Altitude: [12,600M \(Max\)](#)

2.4.4 Vibration

The power supply shall be subjected to a vibration test consisting of a 10 to 300Hz sweep at a constant acceleration of 2G for a duration of one 1hour for each of the perpendicular axes X,Y and Z. The power supply shall not incur physical damage or degradation of any characteristics below the performance specifications

2.5 Safety Standards

The power supply shall be certified by following international regulatory standards.

Item	Country	Status	Safety standard
CE	Europe	Meet	EN60950-1
GS	Germany	---	EN60950-1
UL/cUL	America / Canada	---	UL 60950-1 / CSA C22.2
DOFT	Australia/New Zealand	---	AS/NZS60950-1
CCC	China	---	GB4943
TUV Mark	United Kingdom	---	BS EN60950-1
PSE	Japan	---	J60950
KCC	Korea	---	K60950
CB	Global	---	IEC60950-1

2.6 Electromagnetic Compatibility

2.6.1 Electrostatic discharge immunity (ESD)

IEC61000-4-2:2008

Air Discharge: [±8KV](#)

Contact Discharge: [±4KV](#)

Discharge Impedance : 330ohm / 150pF

Polarity: Positive and Negative

Performance: Criteria B

2.6.2 Radiation electromagnetic Field immunity (RF)

IEC61000-4-3: 2006+A1:2007+A2:2010

Range : 80MHz-1000MHz

Field Strength : [3V/m/80%AM\(1 KHz\)](#)

Distance Antenna-EUT : 3m

Polarity of Antenna : Horizontal and Vertical

Performance: Criteria B

2.6.3 Electromagnetic Fast transient immunity (EFT)

IEC61000-4-4:2004

Techniques - Electrical fast transient/burst immunity test

Pulse Amplitude-AC Power Port: [1KV](#)

Burst Frequency: 5.0kHz

Polarity of Antenna : Positive and Negative

Performance: Criteria B

2.6.4 Surge immunity

IEC61000-4-5:2005

1.2/50 usec Open Circuit voltage

8/20 usec Short Circuit current

Power line: [1KV](#)

Performance: Criteria B

2.6.5 Conducted disturbances immunity

IEC61000-4-6:2008

Range: 0.15MHz-80MHz

Voltage Level: 3V

Step: ≤ 0.015 decades / sec

Performance: Criteria B

2.6.6 Voltage Dips, Interruption & Variations

IEC61000-4-11:2004

[100Vac](#) and [240Vac](#)

500mS at 30% of Vnom

10mS >95% of Vnom

Duration of Interruption(>0.95*Vnom): 5S

Performance: Criteria B

2.6.7 FCC

FCC Part 15, Class B

2.6.8 C-Tick

CISPR 22

2.7 Reliability

2.7.1 Burn-in

2hours at 40°C ($\pm 5^\circ\text{C}$) , Nominal input voltage, 80% of rated load

2.7.2 Mean Time Between Failure (MTBF)

The power supply shall be designed and produced to have a mean time between failures (MTBF) of

[50,000](#) hours, at [25°C](#) [120Vac & 230Vac](#) according to [BELLCORE SR-332 issue3](#)

2.8 Additional Requirement

2.8.1 Leakage Current

The power supply leakage current shall be less than [0.25mA](#)

2.8.2 Dielectric Withstand Voltage (Hi-Pot)

Primary to Secondary: [3000V/60S](#)

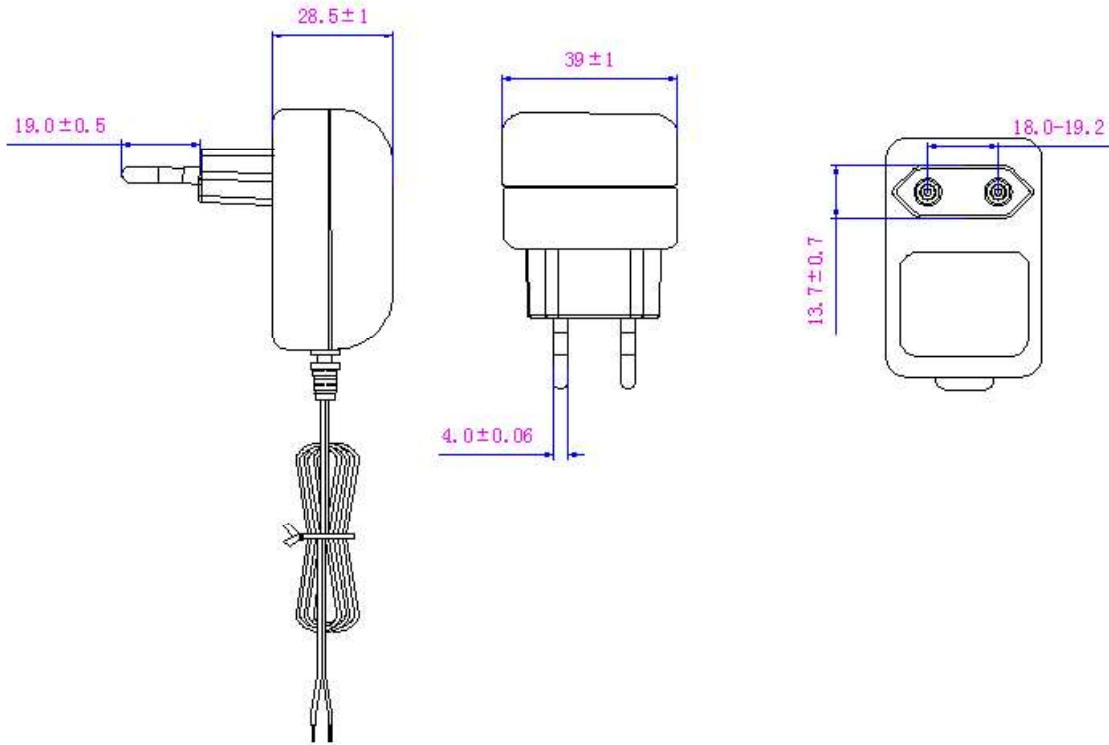
Cut off current: [10mA](#)

2.8.3 Insulation Resistance

Insulation resistance shall be more than [10M ohm](#) at 500Vdc between primary Live, Neutral line and secondary

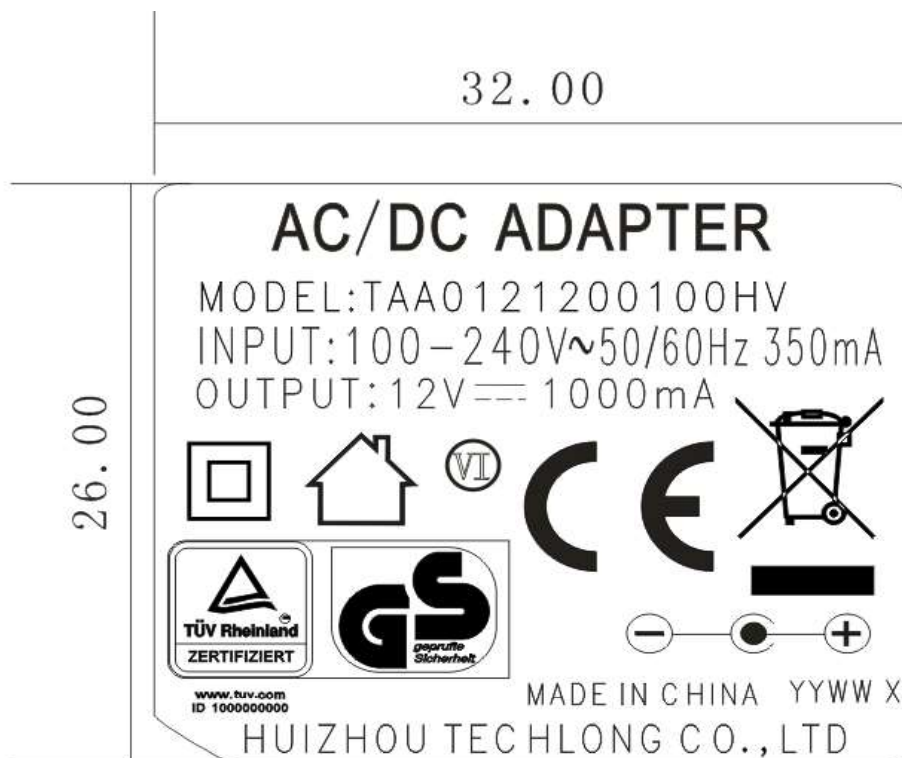
3 Mechanical

3.1 Enclosure drawing



- 1, Physical size: $83.00 \pm 2\text{mm(L)}$ * $39.00 \pm 2\text{mm(W)}$ * $28.5 \pm 2\text{mm(H)}$
- 2, Material: PC, UL94V-0
- 3, Color: BLACK (REACH+ROHS)
- 4, AC Input Plug: EU
- 5, Weight: Approx. 77.00 g (Max.)

5.2 Label Drawing



1.Laser

2.Unit: mm

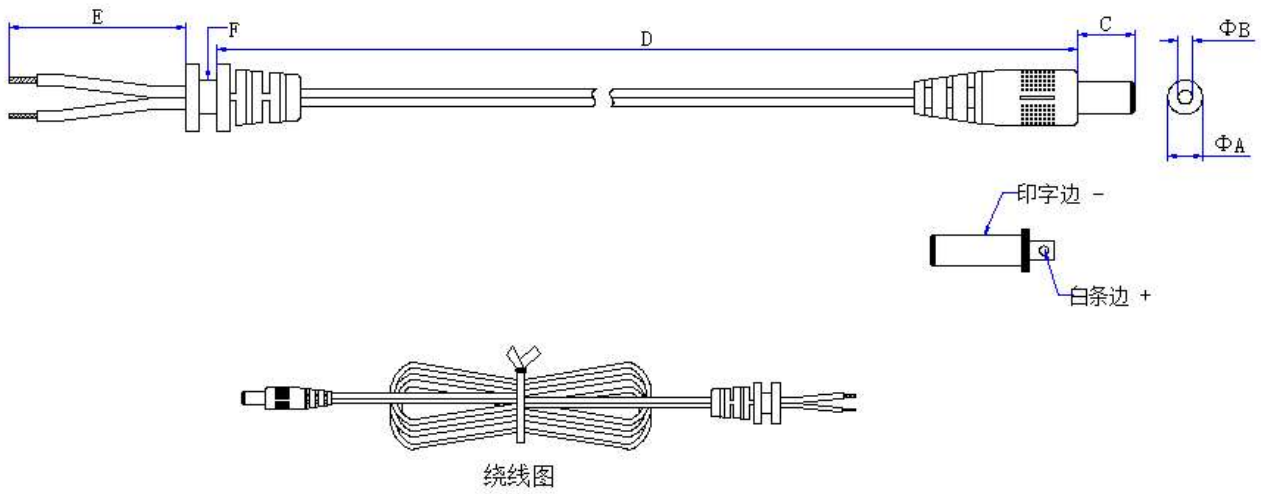
Remark:

The date code will be showed on the nameplate , the number is YYWW

YY = Year

WW = Week

5.3 DC Cable & Plug



- 1 DC Plug: $5.5 \pm 0.05\text{mm}$ * $2.1 \pm 0.05\text{mm}$ * $9.5 \pm 0.5\text{mm}$ Fork
- 2 Wire: UL2468 80°C 300V 24 AWG 1.5m
- 3 Polarity: BLACK and WHITE----Positive, BLACK----Negative
- 4 DC Jack: PVC

