

CUSTOMER

SPECIFICATION FOR APPROVAL

AC/DC ADAPTOR

CUSTOMER SPEC: INPUT: 100-240V AC 50/60Hz OUTPUT: 12VDC 3000mA

CUSTOMER DWG./PART NO. _____

PART NO. NBS30D120300D5

SAMPLE NO: M2001135 **REV.:** 1.0 **ISSUE** **DATE:** 2020-12-29

PRDUCT NO: SL01135DG

Unit Color: Black



White



APPROVED SIGNATURES/客户确认		
核准/APPROVED BY	审核/ CHECKED BY:	检测/TESTED BY:

Manufacturer/制造商			
业务/SALES	品管/QE	核准/APPROVED BY	制样/DESIGNED BY
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2 Electrical Specification

2.1. Input requirements

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		/	0.8	A	at100Vac/ 60Hz- at240Vac/ 50Hz
Input Inrush Current		/	100	A	Cold Start 230Vac
Power Consumption		/	0.1	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	3	*	36	

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 [150mV](#)

2.2.3 Average Efficiency

The average efficiency is larger than [87.40%](#) which is at 115Vac/60Hz and 230Vac/50Hz with 100%,75%,50%,25% rated load. This result comply with the [DOE VI](#)

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 [4S](#)

2.2.7 Rise time

The Supply shall have a start-up rise time of less than [30mS](#) 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 [10mS](#)

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 [6A](#) at 230Vac.

2.3.2 Over voltage protection

The output voltage shall be clamped by internal protection. The output voltage is less than [18V](#).

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~+50°C](#) Safety temperature 40°C

Storage Temperature: [-40~+80°C](#)

2.4.2 Humidity

Operating Humidity [20% ~+ 98%](#)

Storage Humidity [20% ~+ 98%](#)

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 hour 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	Approved	EN62368-1
UL/cUL	America / Canada	Approved	UL 62368-1 / CSA C22.2
SAA	Australia/New Zealand	Approved	AS/NZS62368-1
TUV Mark	United Kingdom	Approved	BS EN62368-1
CB	Global	Approved	IEC62368-1

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 A

2.6.2 EMI Standards

The power supply shall meet the radiated and conducted emission requirements for [FCC part 15 CLASS B , EN55032 Class](#)

2.6.3 EMS Standards

The power supply shall meet the following EMS standards [EN55035](#)

2.6.4 Radiation electromagnetic Field immunity (RF)

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

Range : 80MHz-1000MHz

Field Strength : [3V/m/80%AM\(1 KHz\)](#) 80MHz - 690MHz

[10V/m/80%AM\(1KHz\)](#) 690MHz - 6GHz

Distance Antenna-EUT : 3m

Polarity of Antenna : Horizontal and Vertical

Performance: Criteria A

2.6.5 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 Pulse : Positive and Negative

Performance: Criteria A

2.6.6 Surge immunity

IEC61000-4-5:2005

1.2/50 usec Open Circuit voltage

8/20 usec Short Circuit current

Differential Mode: [1KV](#)

Common Mode: [2KV](#)

Performance: Criteria A

2.6.7 Conducted disturbances immunity

IEC61000-4-6:2008

Range: 0.15MHz-80MHz

Voltage Level: 3V

Step: ≤ 0.015 decades / sec

Performance: Criteria A

2.6.8 Voltage Dips, Interruption & Variations

IEC61000-4-11:2004

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

200mS at 60% of Vnom

20mS >95% of Vnom

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

Performance: Criteria B

2.7 Reliability

2.7.1 Burn-in

4hours 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

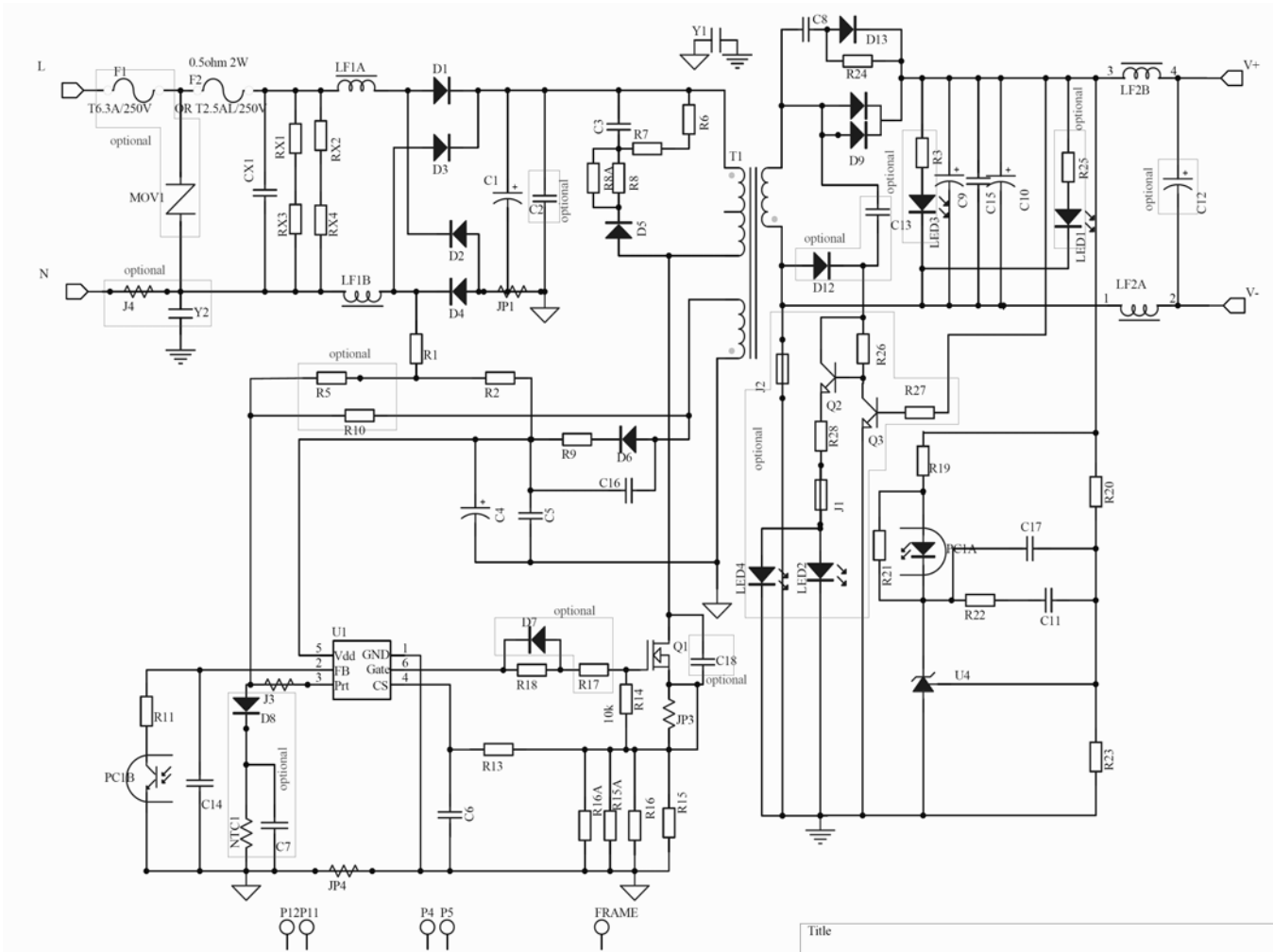
Insulation resistance shall be more than [10M ohm](#) at 500Vdc between primary Live, Neutral line and secondary

2.8.4 Drop

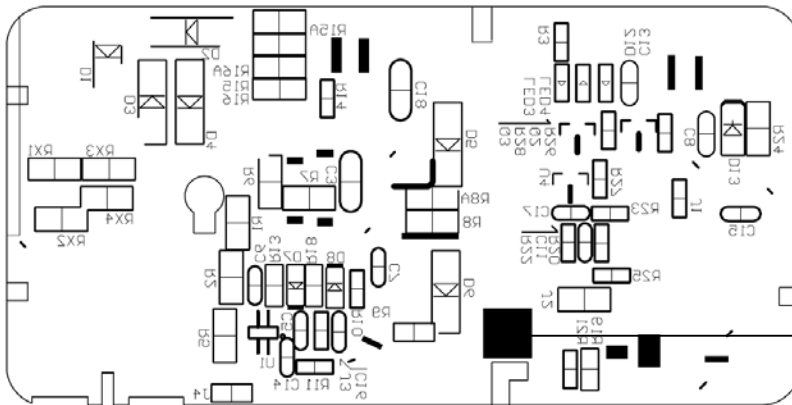
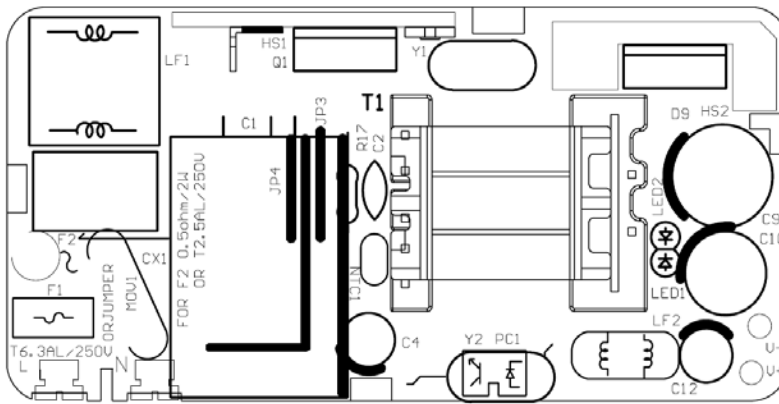
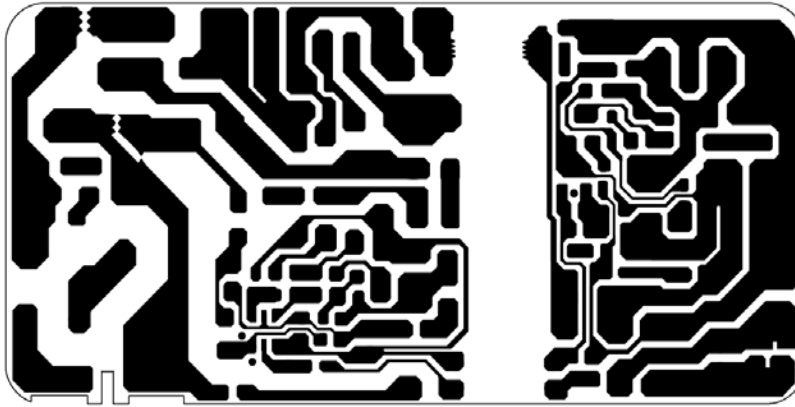
Minimum of one sample shall be dropped from a height of [0.75m onto a](#) 30mm [hardwood surface](#) [6 times](#) 1 cycle.

After test, the enclosure cannot be damaged and there are no sharp corner

3 Circuit Schematic



4 PCB Layout



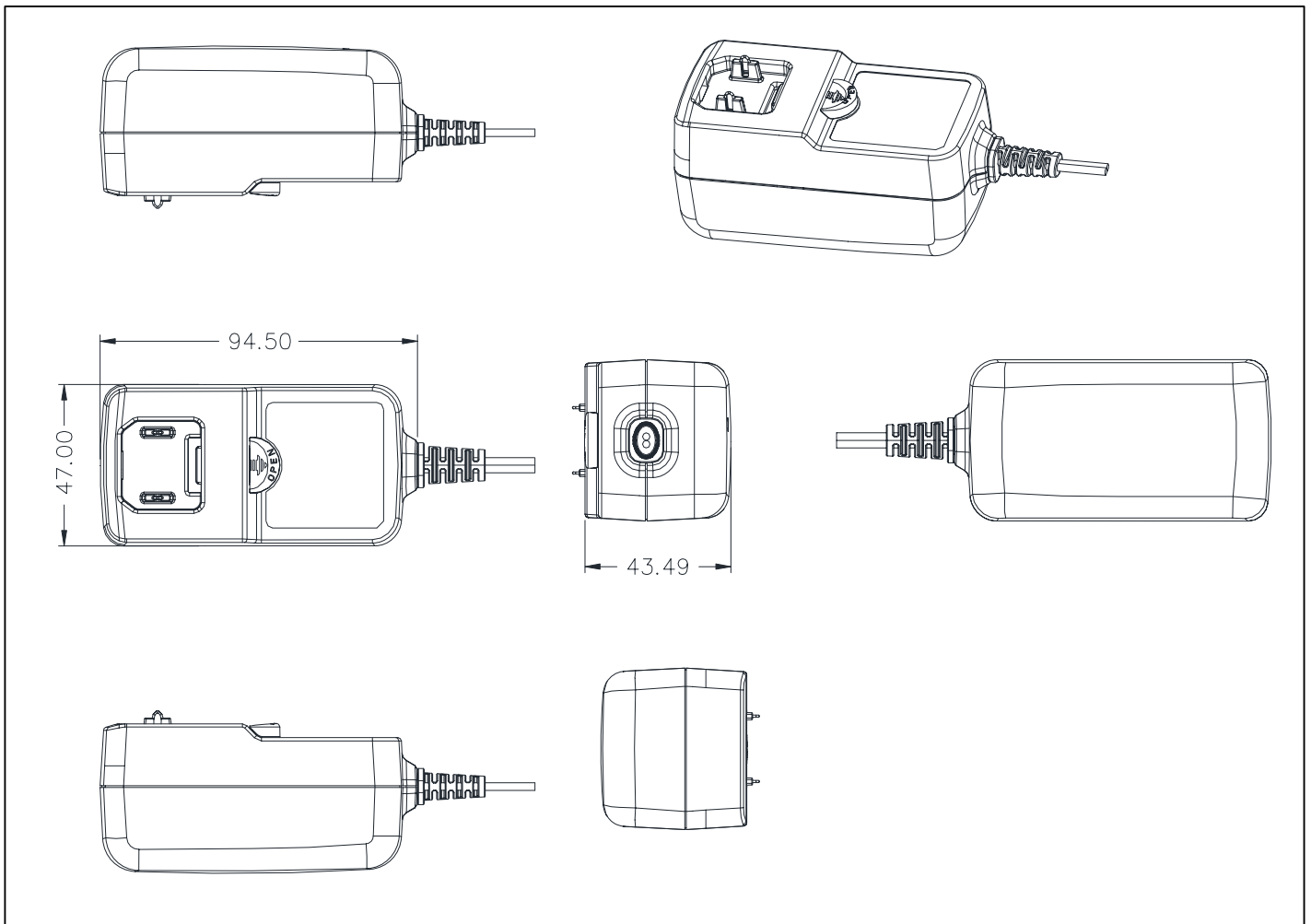
Notes: PCB white area laser QR code

The QR code's number have nine digits, For Example: 123456789

1. Number 1, means laser machine No.: 1~9, A~Z(no include I,O)
2. Number 2, means Year, 1~9,A~Z(no include I,O), for example "8" for 2018,"A" for 2020
3. Number 3, means Month,1~9 for Jan to Sep, "A" for Oct, "B" for Nov, "C" for Dec
4. Number 4, means Date,1~9,A~X(no include I,O),for example "8AA" for 2018/10/10
5. Number 5 to 8, means serial number: 1~9, A~Z(no include I,O), first number:00001
6. Number 9, means PCB code: 1~9, A~Z(no include I,O)

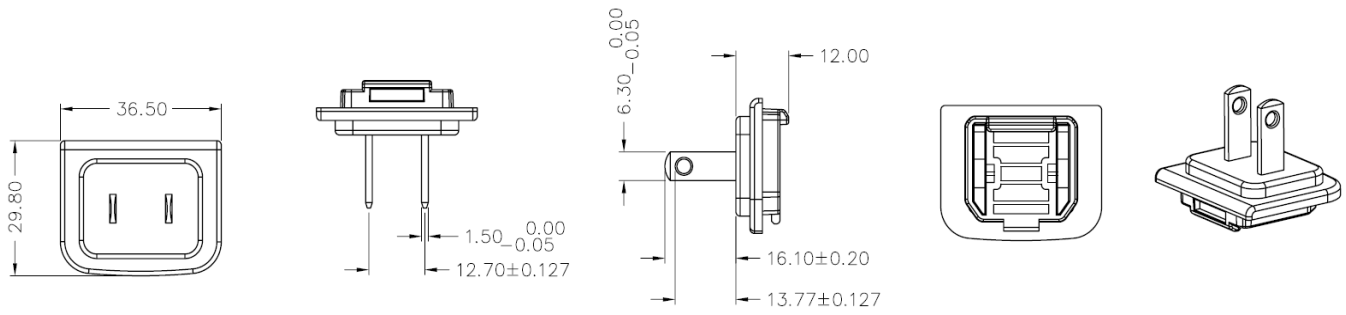
5 Mechanical

5.1 Enclosure drawing

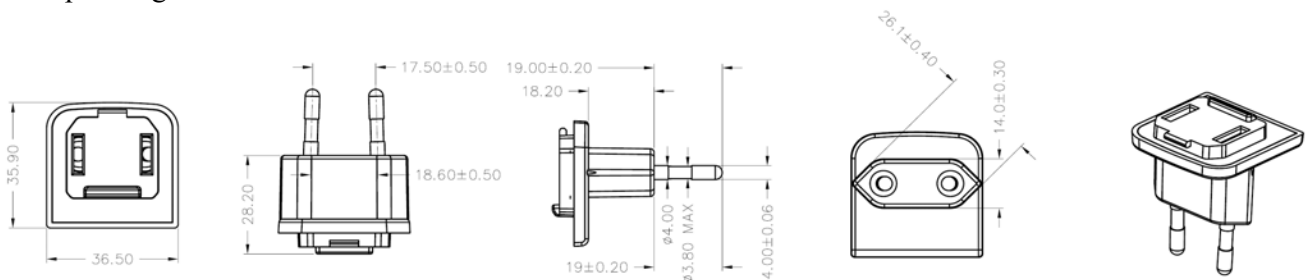


- 1, Physical size: 94.50±1mm(L)* 47.00±1mm(W)* 43.49±1mm(H)
- 2, Material: PC, UL94V-0
- 3, Color: BLACK
- 4, AC Input Plug: D5
- 5, Weight: Approx. 151.0g±5%

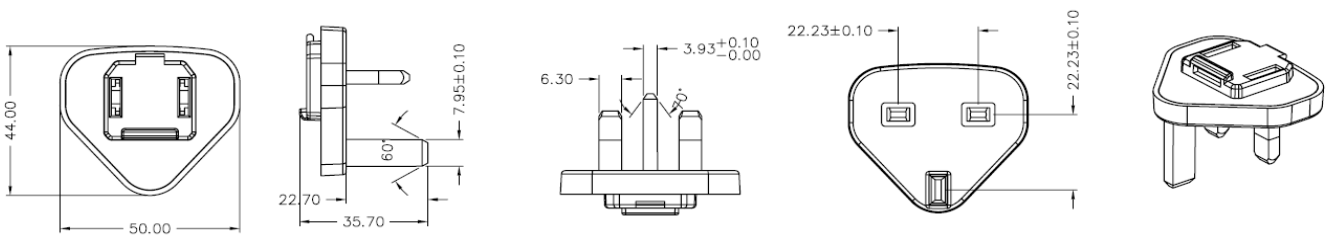
AC Input Plug:UL



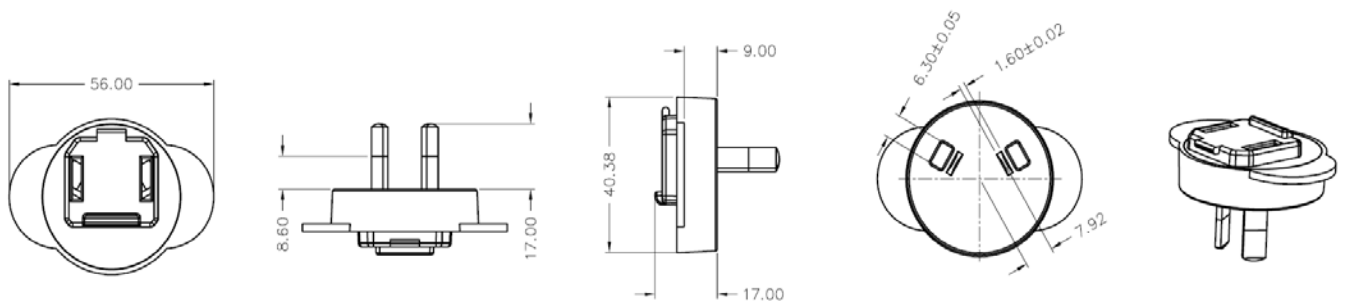
AC Input Plug: EU



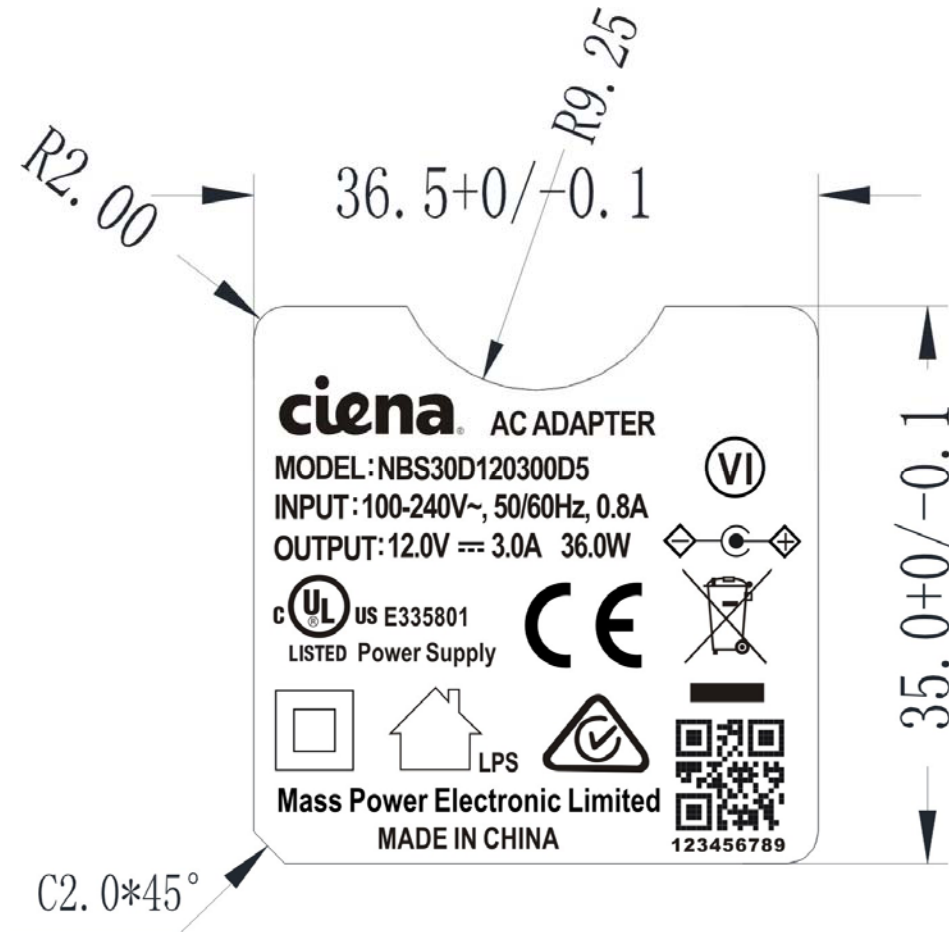
AC Input Plug:UK



AC Input Plug:SAA



5.2 Label Drawing



1.Laser(镭射)

2.Unit: mm

The QR Code's number have nine digits, For Example: 123456789

Number 1 to 2, means laser machine No.:per code 1~9, A~Z(no include I,O)

Number 3, means Year, 1~9,A~Z(no include I,O), for example "9" for 2019,"A" for 2020

Number 4, means Month,1~9 for Jan to Sep, "A" for Oct, "B" for Nov, "C" for Dec

Number 5, means Date,1~9,A~X(no include I,O),for example "A5G" for 2020/05/16

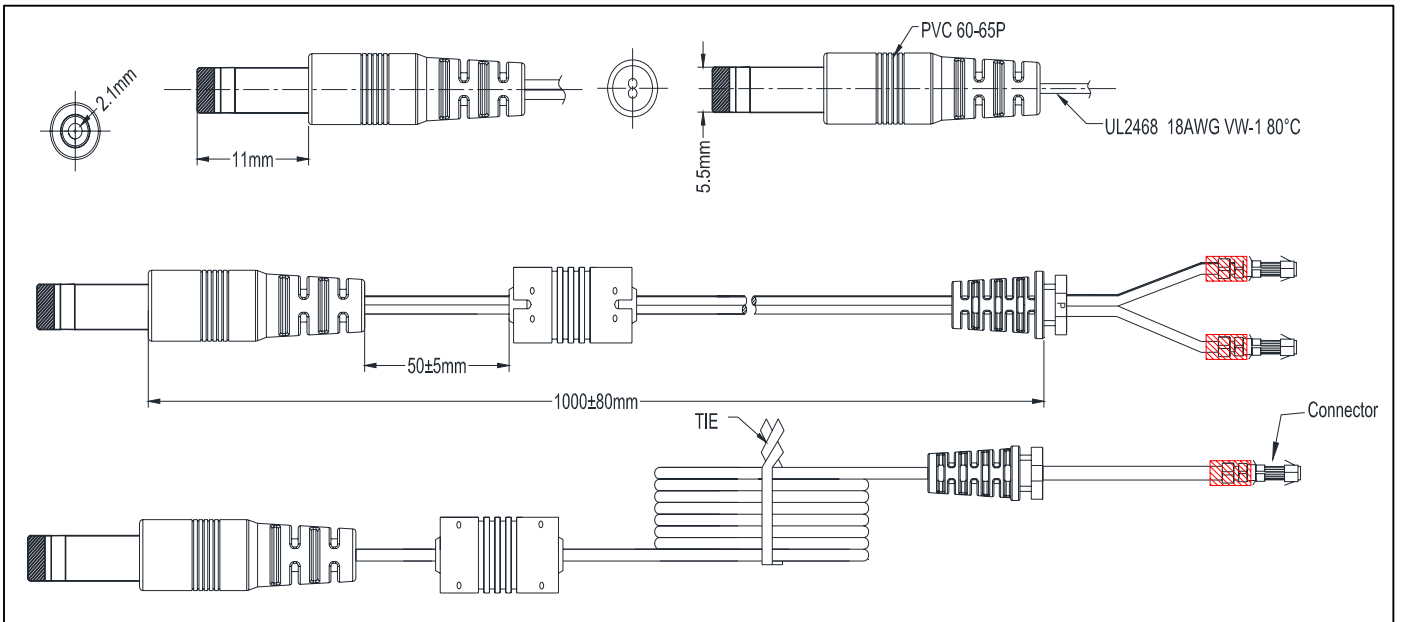
Number 6 to 9, means serial number: 1~9, A~Z(no include I,O)

1.QR code size:7mm*7mm, type: QR code

2. Digit Size:0.9mm(H) (±0.5mm)

3. The distance from QR code size to the digit size:0.5-1mm

5.3 DC Cable & Plug

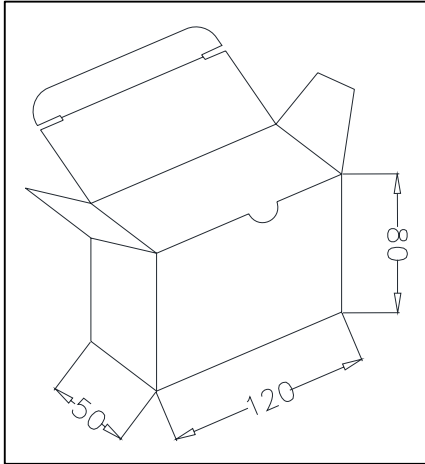


- 1 DC Plug: $5.5 \pm 0.05\text{mm}$ * $2.1 \pm 0.05\text{mm}$ * $11 \pm 0.5\text{mm}$ *
- 2 Wire: UL2468 80°C 300V 18 AWG 1m 距离DC头50MM处加磁环.
- 3 Polarity: BLACK and WHITE----Positive, BLACK----Negative
- 4 DC Jack: PVC

5.6*2.1MM母座

6 Packing Information

6.1 White Box



1. Unit: mm
2. Size: $120\pm 1\text{mm} * 50\pm 1\text{mm} * 80\pm 1\text{mm}$
3. Material: 350g

6.2 Carton

