

Primary electromagnetic gun version A kit installation tutorial

This tutorial is divided into two parts, the first part is installation instructions, the second part is debugging and troubleshooting

Bill of materials

(red can not weld back! If damaged, have a spare LED replacement)

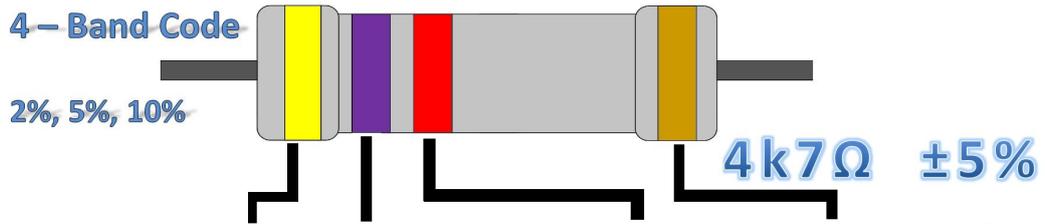
order number	name	parameter	Accessories figure number	quantity
1	Energy storage electrolytic capacitor	1000uf/100V	Pay attention to the positive and negative! Horizontal welding	1
2	diode	1N4148		1
3	Zener diode	2E Z 91D 5		1
4	2 number 5 battery seats			1
5	screw	M 2*6	Fixed battery box	2
6	nut	M 2		2
7	Color ring resistance	5. 1K	R1 R 2	2
8	LED red	5m m	No welding error (spare 1)	2
9	LED hispid arthraxon	5mm	(Prepare 1)	2
10	dynatron	9013	(Prepare 1)	2
11	Magnetic ring transformer	Has been around	Include the following two	1
	Two tin-plated lines		4T around the transformer	2
	0.51 copper wire	45cm	Top 18T around the transformer	0.45 Meters
12	tinned wire	20cm	Self-cut into 10cm for use	4
13	Twist switch		Contains screw gasket	1
14	Point switch			1
15	One set of electromagnetic gun coils		Include the following two	1
	Plastic barrel	special use	Inside the electromagnetic gun coil	1

	The 3mm heat shrink tube is fixed	About 1cm long	The stuck gun works	1cm
16	motherboard PCB			1
17	subplate PCB			1
18	Iron column gun	M4*12		5
19	Copper column	M3*10	Main board mat	4
20	screw	M 3*6	Fixed mat	8
23	nut	M 3	Battery pad	4
24	3mm, heat-shrink tube	About 10CM	The switch-push button wire head is insulated	10cm
25	nylon spacer	M 3*5	Battery pad	4
The following is the acrylic shell optional AB version general				
	Acset of one shell			6
	screw	M2*10	Secthe acrylic housing	8
	nut	M 2	Secthe acrylic housing	8
	screw	M3*12	Fixed gun plate M3 * 6, switch to the motherboard	4

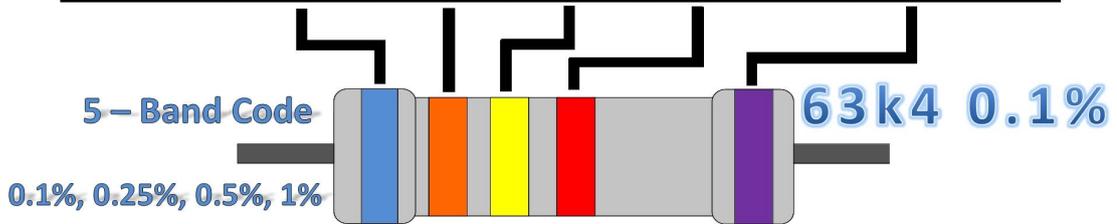
Color ring resistance identification method:

Color ring resistance is a different color color ring coated on the ordinary resistance package, used to distinguish the resistance value of the resistance. Ensure that when installing the resistance, no matter from what direction to install, you can clearly read its resistance value. The basic units of color ring resistance are: ohm (Ω), thousand euro ($K\Omega$), trillion euro ($M\Omega$). 1 megohm ($M\Omega$) =1000 kilogohm ($K\Omega$) =1000000 Ohm (Ω).

The usual use of the color ring resistance can be divided into four rings and five rings, usually with four rings. The first second ring of the fourth ring resistance is the number, the third ring is the number of the resistance multiplier, the last ring is the error, the fifth ring resistance is the number, the fourth ring is the number of the resistance multiplier, and the last ring is the error. Error is usually gold, silver and brown (gold error: 5%, silver error: 10%, brown error: 1%, colorless error: 20%, rarely used green for error: 0.5%)



Color	1 st Band	2 nd Band	3 rd Band	Multiplier	Tolerance
Black	0	0	0	1Ω	
Brown	1	1	1	10Ω	± 1%
Red	2	2	2	100Ω	± 2%
Orange	3	3	3	1kΩ	
Yellow	4	4	4	10kΩ	
Green	5	5	5	100kΩ	± 0.5%
Blue	6	6	6	1MΩ	± 0.25%
Violet	7	7	7	10 MΩ	± 0.1%
Grey	8	8	8		± 0.05%
White	9	9	9		
Gold				0.1Ω	± 5%
Silver				0.01Ω	± 10%



Resistance color ring table small formula:

Brown one red two orange is three, four yellow five green six for blue, seven purple eight gray nine dialogue, black is zero, gold five silver ten table error.

Four-color ring resistance: read method example:

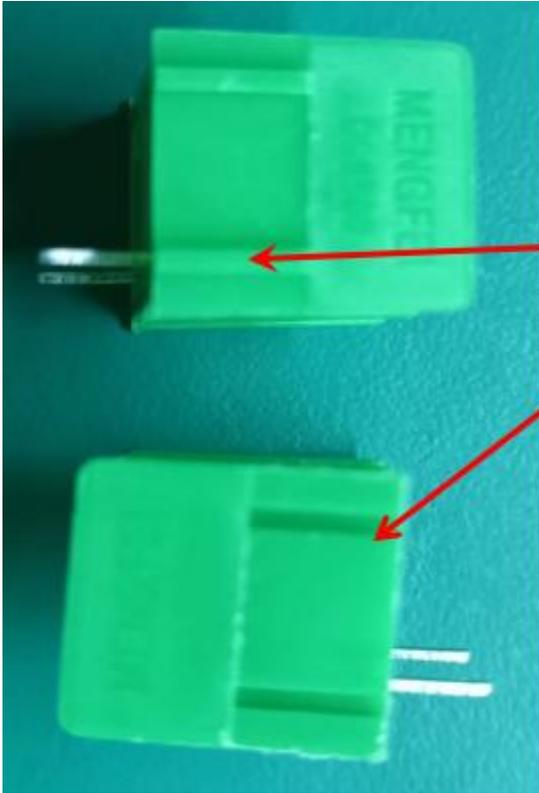
- 1, red, yellow, brown, gold $24 * 10 = 240$ euro gold error is 5%
- 2, green, red, yellow, silver $52 * 10000 = 520K$ o? m error is 10%

Five-color ring resistance: the general five-ring resistance is a relatively precise resistance, reading method example:

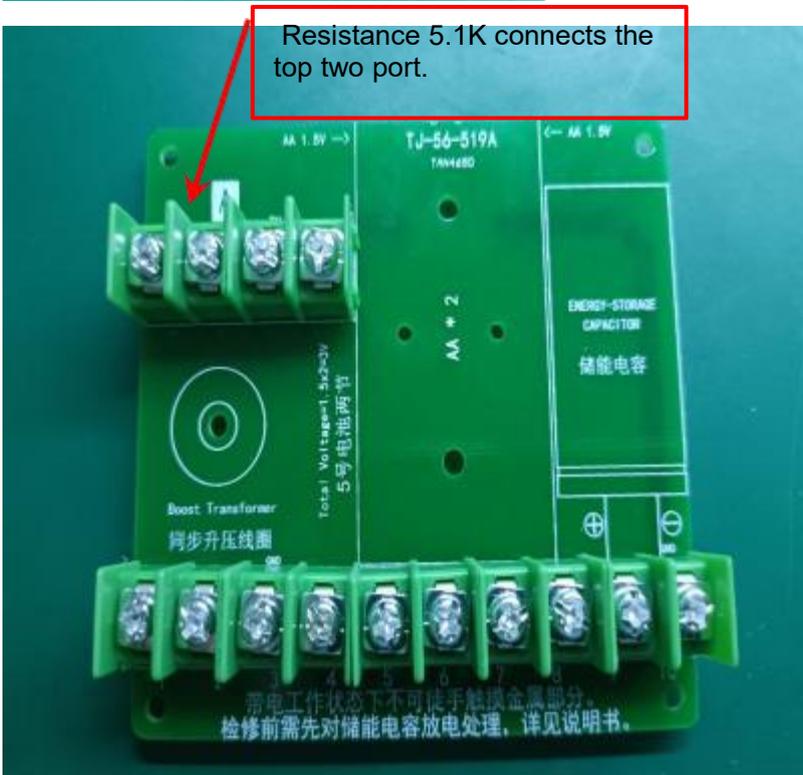
- 1, red, red, black, black, brown $220 * 1 = 220$ euro error is 1%
- 2, purple, red, brown, red, green $521 * 100 = 52.1K$ European error is 0.5%

Six-color ring resistance: refers to the six-color ring to represent the resistance value, the six-color ring resistance before the five-color ring and the five-color ring resistance representation method, the sixth color ring represents the temperature coefficient of the resistance. Only in the specific requirements of the situation of the electronic products will be used, generally used very little.

Color ring resistance identification method:



The end of the port is connected to the end under the concave



Resistance 5.1K connects the top two port.

On the back after the installation
 Line welding, electric complex iron temperature 350 Degree to 400, between degrees, and heating 5- -10 seconds to make the solder more. light Slide, round, clean, even, symmetrical, neat and beautiful

Resistance 5.1K Connect silkscreen 3,6, and the resistance is positive or negative.

Secure the battery box with two M2 *6 screws and M2 nuts

Electrolytic capacitor long foot For the positive pole, the short feet for negative electrode. Positive electrode electrical connection Road board $\ominus+$, negative Pole connection circuit board $\ominus-$

Red LED long pin is positive, short pin is negative. Connect the long pin to screen No. 7, and the short pin to screen No. 6

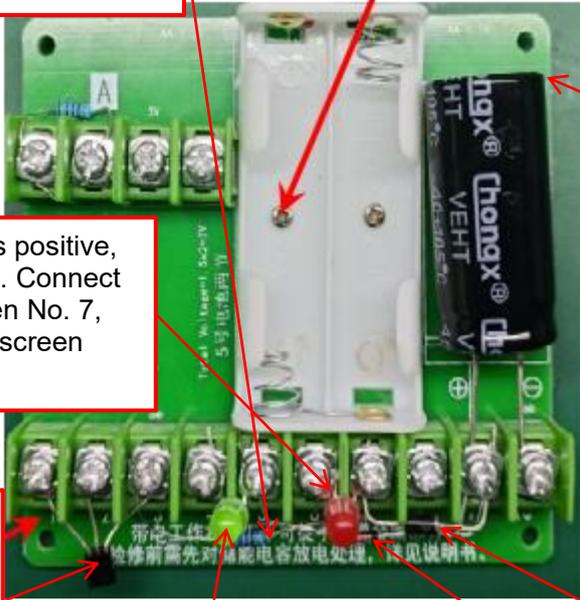
Port silk-screen labels 1 to 10

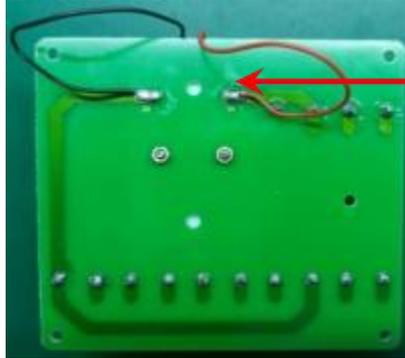
The triode plane is connected to screen 1,2,3 in turn

Green LED long pin is positive, short pin is negative. Connect the long pin to Screen No. 4 and the short pin to screen No. 5

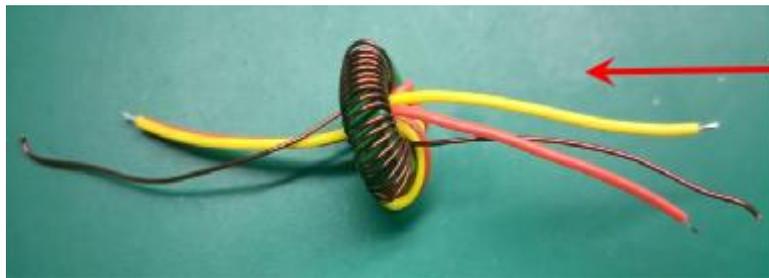
Diode 1N4148 black end is negative, the positive end is connected to screen No. 5, the black end is connected to screen No. 9

The silver end of diode 2EZ91D5 is negative, the positive end is connected to screen 7, and the silver and white end is connected to screen 9





Two cables are drawn from the battery box. The black cable connects the negative terminal to 3V - and the red cable connects the positive terminal to 3V+.

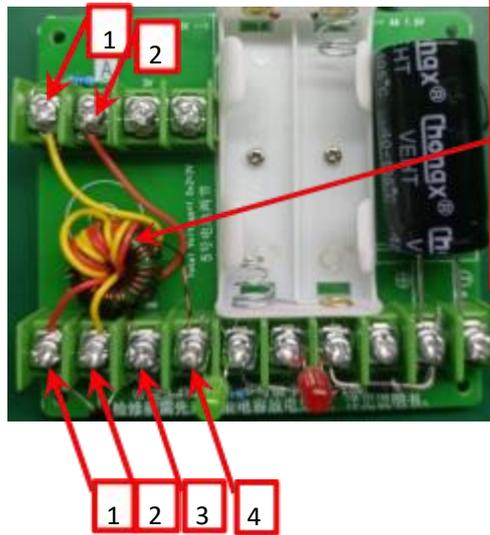


Before connecting the magnetic ring transformer, the excess wire and enamelled wire are wound to increase the emission power. The picture shows the comparison before and after winding

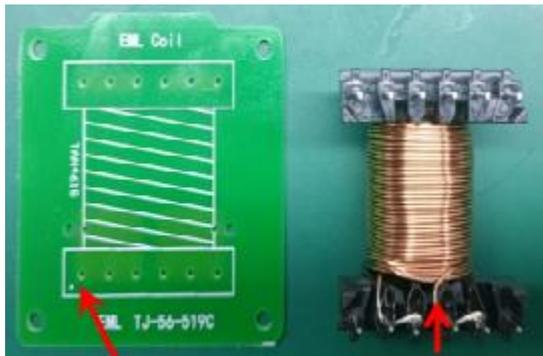
Woundprewinding before



The enameled wire should be removed before connection and tinned with solder.



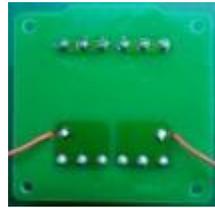
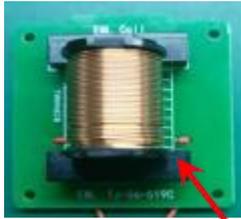
Magnetic ring transformer, yellow wire connected to upper terminal 1, connect to lower terminal 2, (or red wire connection), red wire connected to upper terminal 2, connect to lower terminal 1, (or yellow wire connection) enamelled wire connected to terminal 3, terminal 4. Note: No matter what color line, the same connection as above, the same cross-connect.



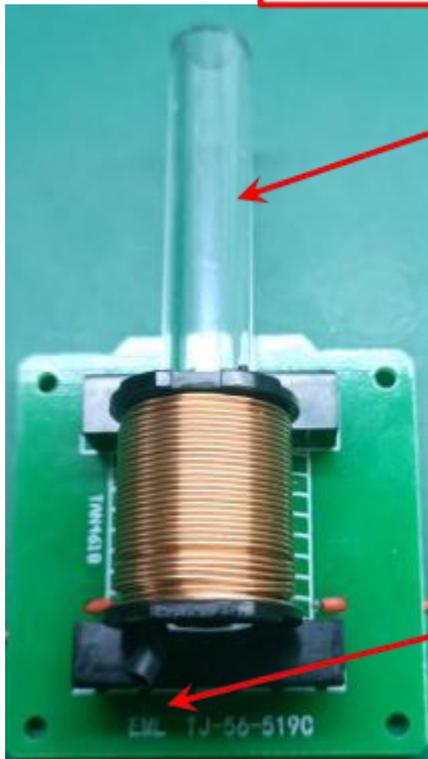
The end with a white dot and the end of the gun coil connection are mounted accordingly



installation diagram

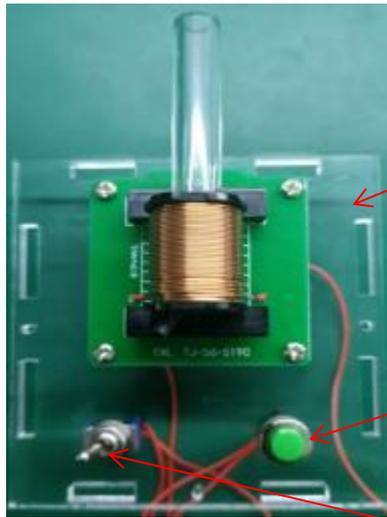


Lead through the two holes with the following welding



The plastic barrel passes through the front end of the coil

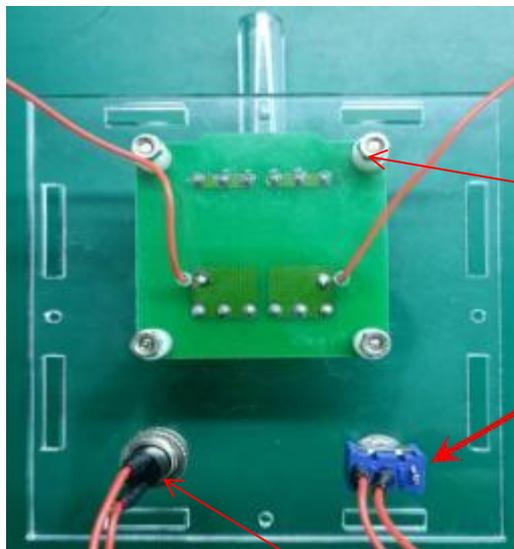
Fixed the plastic barrel with a heat shrink tube



Install the fort on the acrylic plate, and remove the protective film above the acrylic before installation.

Install the dot switch on the acrylic plate (large hole)

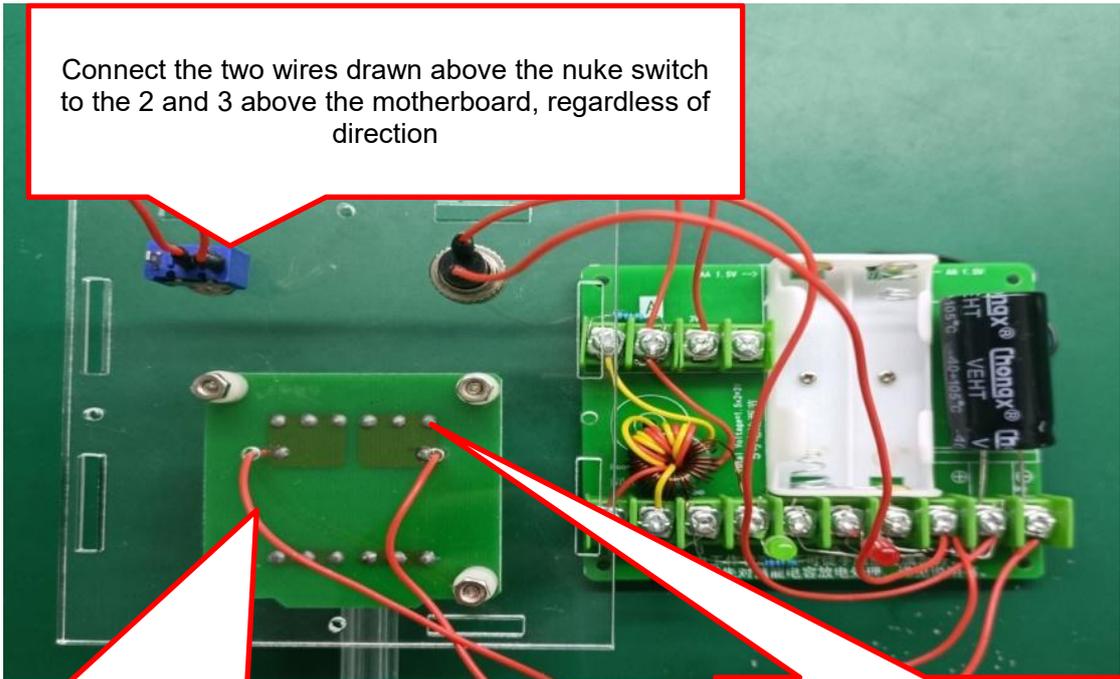
Install the button switch on the acrylic plate (small hole)



Install the four nylon spacers (white) under the four holes under the board subversion

Connect the pin of the switch with two leads (the middle pin must be connected)

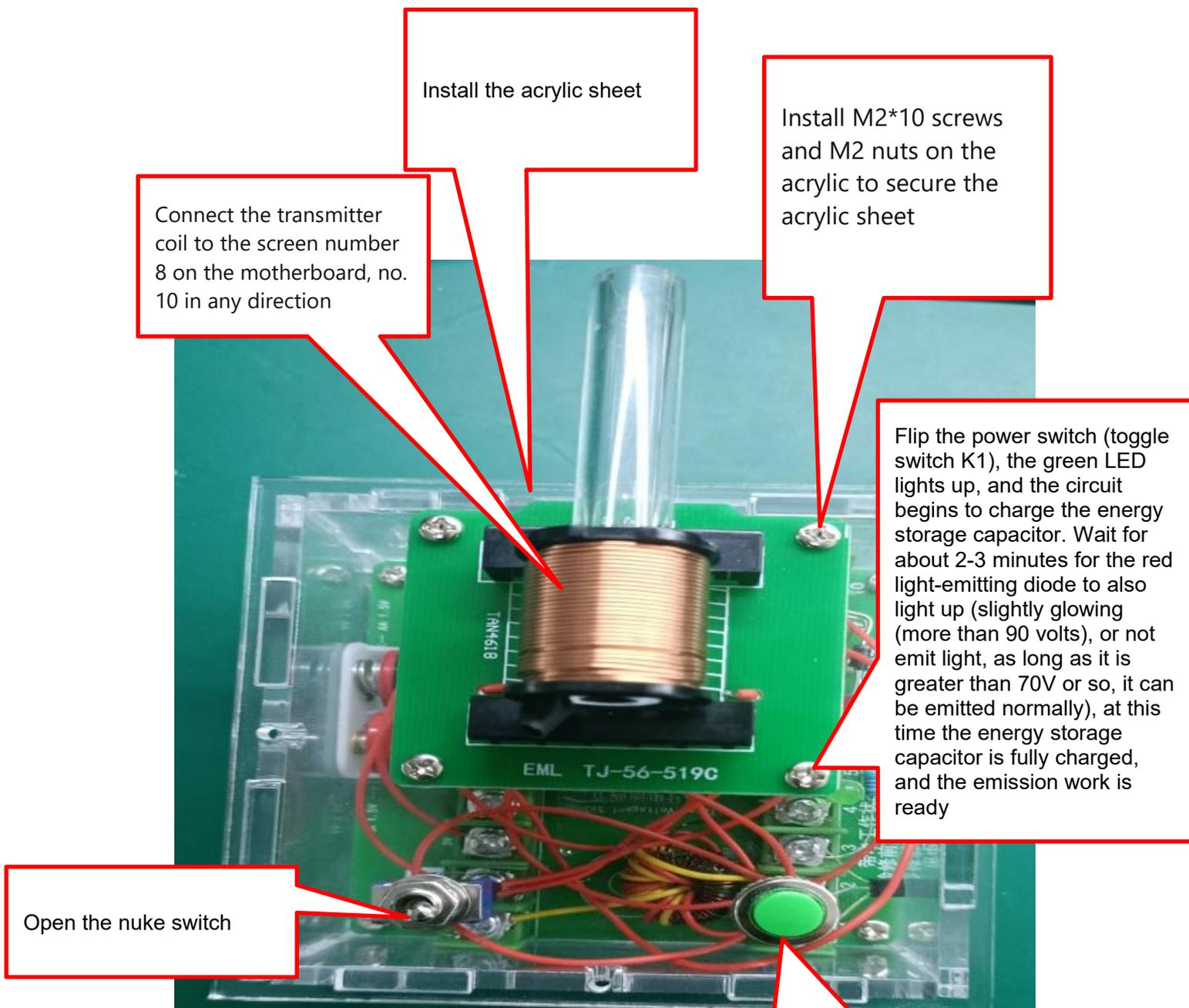
Connect with two leads and the pin of the point switch



Connect the two wires drawn above the nuke switch to the 2 and 3 above the motherboard, regardless of direction

Connect the transmitter coil to the screen number 8 on the motherboard, no. 10 in any direction

Connect the two wires drawn from the point switch to the 8 and 9 above the motherboard, regardless of direction



Install the acrylic sheet

Install M2*10 screws and M2 nuts on the acrylic to secure the acrylic sheet

Connect the transmitter coil to the screen number 8 on the motherboard, no. 10 in any direction

Flip the power switch (toggle switch K1), the green LED lights up, and the circuit begins to charge the energy storage capacitor. Wait for about 2-3 minutes for the red light-emitting diode to also light up (slightly glowing (more than 90 volts), or not emit light, as long as it is greater than 70V or so, it can be emitted normally), at this time the energy storage capacitor is fully charged, and the emission work is ready

Open the nuke switch

Insert the projectile (cylindrical carbon steel rod) from the rear of the gun barrel, and its tail should be flush with the tail of the gun barrel (you can try different positions, 1mm at a time, find how close to the coil edge to fire the farthest distance). Press the firing button (push-button switch K2), the projectile flies out of the barrel, and the firing process is complete. Note that the action of pressing the launch button should be crisp, and release as soon as possible after pressing

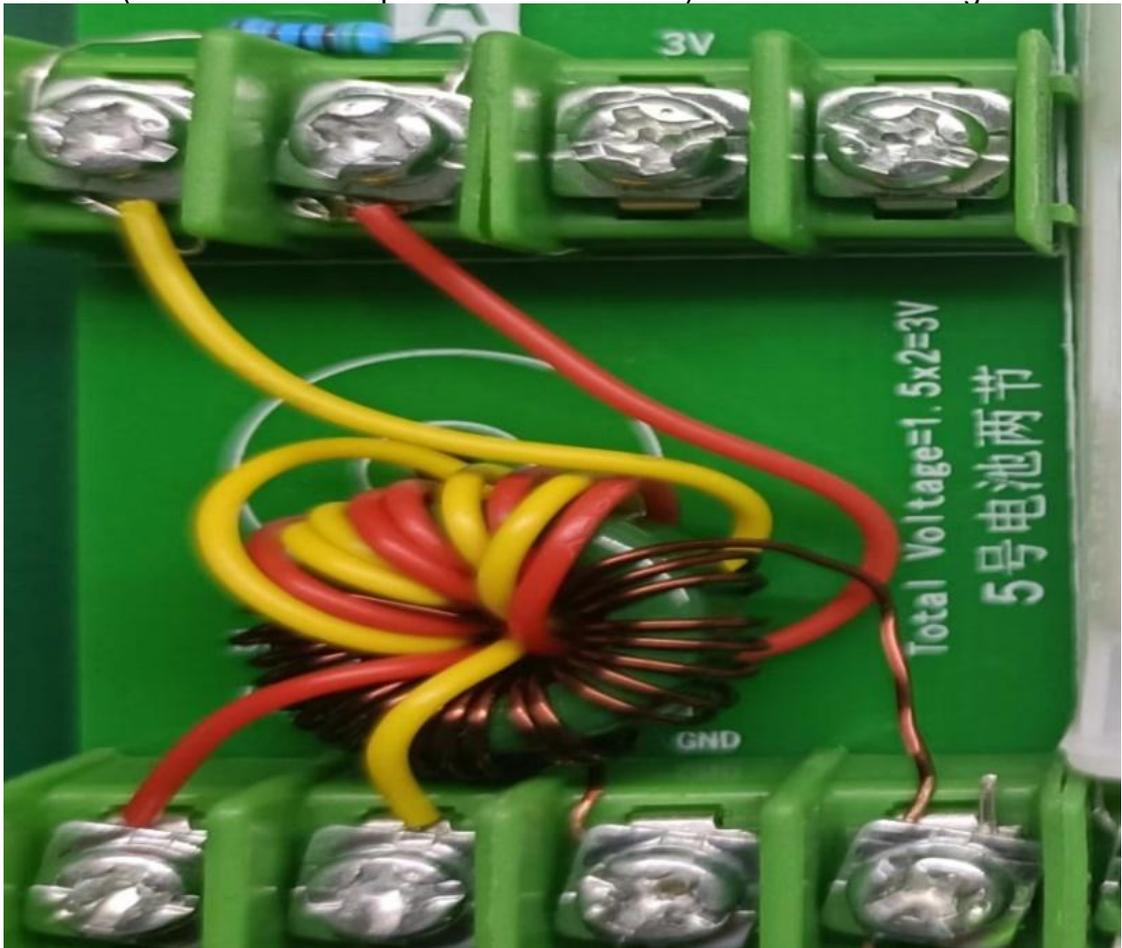
The internal working voltage of the device can reach 90 ~ 100V, exceeding the international safety voltage standard 36V, so when it is powered on, it can not touch the internal electronic components, otherwise there will be an electric shock accident. The insulation of external electronic components such as wire circles is thin, so it is necessary to avoid damage and leakage caused by rubbing. The switch is also a weak link, if there is exposure, the risk will be higher in the version without the shell, pay attention to treatment. The self-assembled circuit board inevitably has errors or faults, such as the booster circuit part has been able to work normally, it may have charged the voltage of the energy storage capacitor (1000uF/100V) to a higher value, resulting in electric shock hazards. Therefore, before troubleshooting and processing, first of all, use a multimeter to measure the

voltage of the two feet of the energy storage capacitor, or directly use a plastic leather wire (both ends of the peel to expose the copper wire), pinch the plastic leather part with both ends of the copper wire touch the capacitor two feet for discharge processing, the capacitor voltage will drop to 0V after the charge is completely released, and then you can safely operate by hand. The surface of the golden copper wire of the magnetic ring transformer has insulating paint, which needs to be scraped, otherwise it will not conduct electricity.

Possible failures:

The launch power is insufficient or does not occur, and the LED is not bright

1 .Check the boost coil. If the LED is not on, switch the two ports of the yellow cable (or switch the two ports of the red cable). As shown in the figure.



2, if the LED is not bright, the LED may be damaged, replace the standby transistor.

3, if the launch power is insufficient or not launched, exchange two wiring ports of enameled wire.

4. If the transmitting power is insufficient or not transmitted, replace the standby transistor for debugging.

5, if the launch power is insufficient or does not launch, it may be that the start button does not stick Up.

6, if the launch power is insufficient or not launched, it may be insufficient battery voltage, check the voltage Whether it's enough.