

TJ-56-630 Microcontroller Electronic Scale Circuit

1. Product description

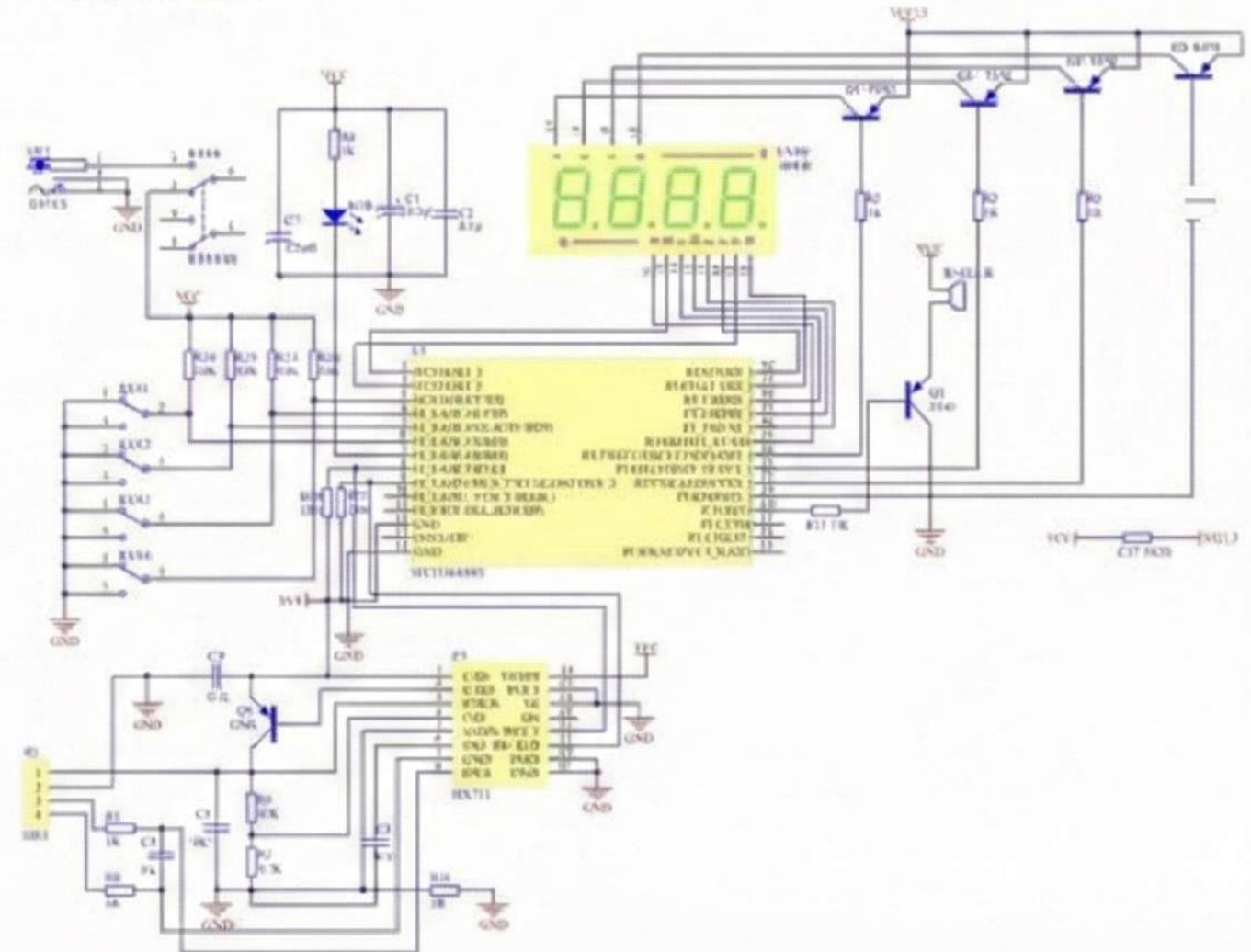
This circuit uses an STC15W408S microcontroller as the main controller, an HX711 dedicated weighing AD chip for data sampling, and a digital tube as the display device to show the weight, it also features four allele-mounted touch buttons for human-machine interaction. The maximum display range is 100g. The digital tube displays the detected weight and allows switching between measurement units (G/KG). It has a fine-tuning calibration function to make the measurement data more accurate. The resolution is 0.01g when the measurement unit is G and 1g when the measurement unit is KG. It has a tare function and an alarm with sound when the object exceeds the detection range.

2. Component list

serial number	Product name	Specification and models	Location	quantity
1	Direct plug color ring resistor	1 KO	R1-R5 R18	6
2	Direct plug color ring resistor	10 KO	R10-R15	6
3	Direct plug color ring resistor	220Ω	R17	1
4	0805 Chip Resistor	00 (0)	R16	1
5	0805 Chip Resistor	20K (203)	R6	1
6	0805 Chip Resistor	8.2K (022)	R7	1
7	0805 Chip Resistor	1k (102)	R8 R9	2
8	0805 SMD capacitor	104	C2-C5	4
9	0805 SMD capacitor	106	C6	1
10	Direct plug electrolytic capacitor	47UF/16V	C1	1
11	Direct plug electrolytic capacitor	220UF/16V	C7	1
12	Direct plug LED	Green hair 3mm	LED	1
13	Direct plug tact switch	Side strap bracket	KEY1-KEY4	4
14	Key switch	PS-22F03 6-pin	KEY6	1
15	DC power socket	DC-005	DC1	1
16	Red digital tube	4-bit 0.8-inch common anode	LED3	1
17	Active buzzer	5V	BUZZER1	1

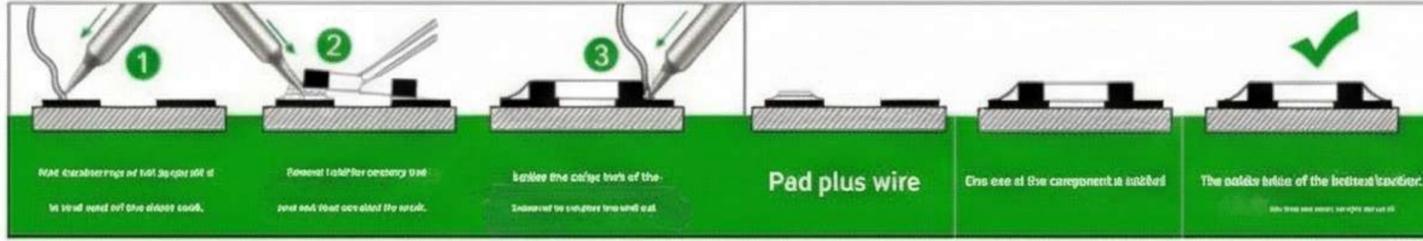
18	Direct plug transistor	8550	Q1-Q4 Q6	5
19	SMD transistor	8830 (pdated STV)	Q5	1
20	Direct digital microcontroller	STC15W408AS	U1	1
21	IC holder	28P	U1	1
22	Chip integrated circuit	HX711	U2	1
23	Small-range gravity sensor, weighing module	1kg		1
24	Acrylic tray			1
25	Coarse thread transparent spacer	M3*6		3
26	Coarse thread transparent spacer	M3*20		2
27	PM series screws	M3*6		5
28	PM machine screws	M3*20		2
29	PM machine screws	M4*12		2
30	PCB circuit board	TJ-56-630		1

3. Circuit diagram

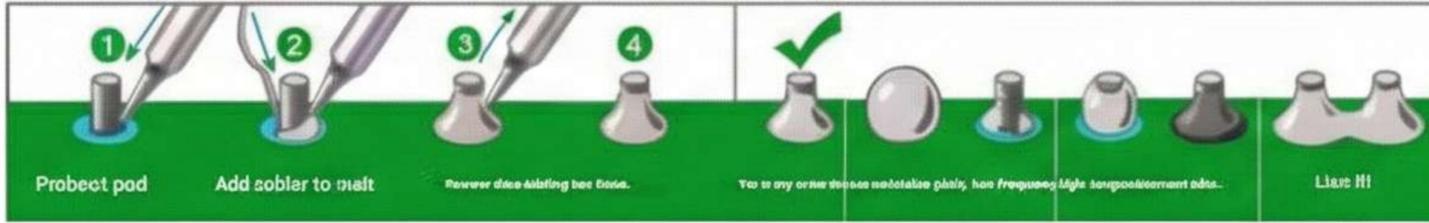


5. Welding and installation

5.1 Surface Mount Component Soldering Method



5.2 Soldering Method for Through-Through Components



5.3 Circuit Board Soldering Steps

2 Surface Mount Resistor Soldering

电阻	电压	功率	封装形式	电阻	电压	功率	封装形式
10K	5.0	0.125	0805	10K	5.0	0.125	0805
100K	5.0	0.125	0805	100K	5.0	0.125	0805

3 Surface Mount Capacitor Soldering

电容	电压	封装形式
100nF	25V	0805
100nF	25V	0805

7 SMD Transistor Soldering

电阻	电压	封装形式
10K	5.0	0805
100K	5.0	0805

4 SMD Chip Soldering

The IC pin and board pad are aligned.

13 Through-hole color ring resistor soldering

电阻	电压	封装形式	封装形式	封装形式
10K	5.0	R15-R15	10K	R15-R15
100K	5.0	R17		

6 Live LED welding

The green LED is positioned because...

7 Through-hole transistor soldering

Transistor: 9013, 9014, 9015, 9018, 9019, 9013, 9014, 9015, 9018, 9019

8 Through-hole electronic capacitor soldering

Capacitor: 1.250V, 100nF, 0805

9 Chip base welding

There is a pos. one direction connects to feet.

10 MCU installation

No table on our boards, the MCU is not a measure of the device of the board.

11 Digital tube welding

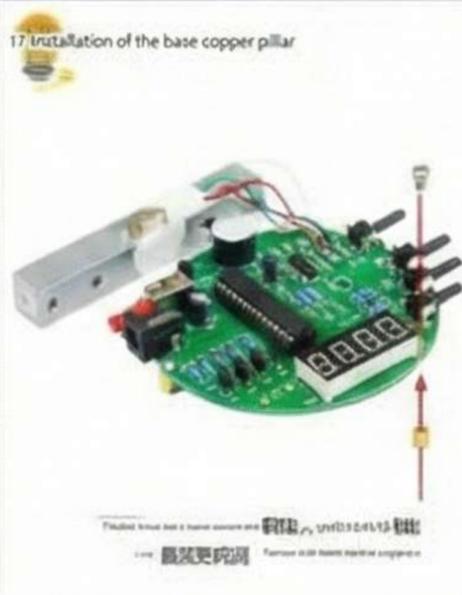
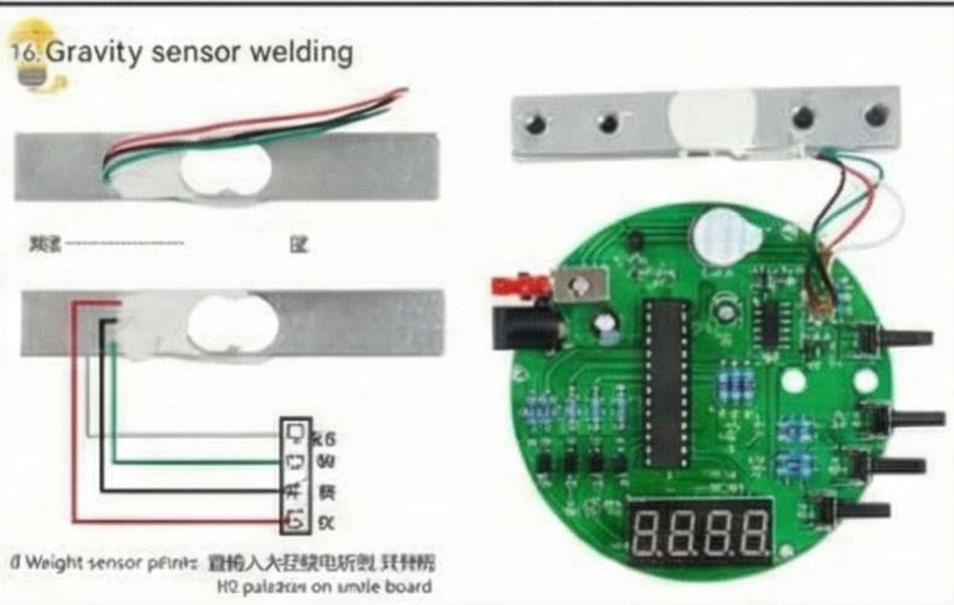
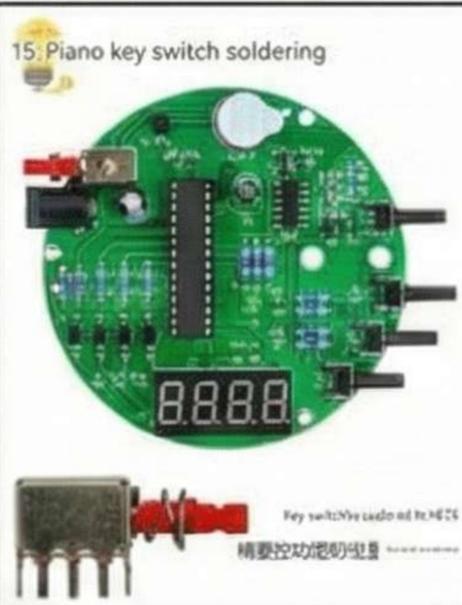
100V 0.125W

13 Welding of active buzzers

Active buzzer: BUZZER, 5VDC

14 Tactile switch welding

Tactile switch: RCYT-RCY, 5VDC



6. Instructions for use

(1) After welding the finished product, plug in the power, press the switch, the LED lights up and the buzzer sounds for a few seconds. The digital tube displays 0.000, the unit is KG, the smallest scale is g, the range is 1KG. If the weight exceeds 1KG, the buzzer will sound an alarm.

(2) Place the electronic scale on a horizontal table and press the zeroing button to zero it;

(2) Press the unit switch button, the digital tube displays 00.00, the unit is g, the smallest scale is 0.01g, and the maximum range is 99.99g. When the weight being weighed exceeds the range, the buzzer will sound an alarm. At this time, press the unit switch button to switch the unit to KG, and the buzzer will stop sounding.

(4) Calibration parameters

Because the characteristic curves of different sensors are not entirely consistent, each sensor needs to have this parameter calibrated to ensure accurate measurements. If the measured weight is too high, press the button to increase this value. Conversely, if the weight is too low, press the button to increase it.

(5) The zero-return button can be used for tare;

