

Metal Detector Electronic DIY Kit - Assembly Guide

Required Tools (Not Included): Soldering Iron, Solder, Solder Wick/Pump (optional), Cutting Pliers, Multimeter (optional), Two CR2032 button batteries.

Important Note: This kit requires self-welding and assembly. Refer to the detailed installation video tutorial for visual guidance.

Step 1: Component Preparation and Placement

1. **Identify Components:** Separate and identify all components from the packing list (resistors, capacitors, transistors, LEDs, buzzer, switch, etc.).
2. **Resistors:** Start by installing the lowest-profile components first. Solder all resistors into their corresponding positions on the PCB. Resistors are not polarized, but ensure the value matches the location (R1, R2, etc.) as printed on the board.
3. **Diodes (LEDs):** Install the four small red alarm LEDs (LEDS 1-4) and the power indicator LED (LED1). **LEDs are polarized;** the longer lead (anode) must go into the hole marked with a + or the square pad, and the shorter lead (cathode) must go into the round pad.

Step 2: Transistors and Capacitors

1. **Transistors:** Install all transistors (labeled Q1, Q2, etc., often a mix of 8050 and 9012 types). **Transistors are polarized;** align the flat side of the component with the flat line outline on the PCB silkscreen.
2. **Ceramic Capacitors:** Solder the small, non-polarized ceramic capacitors (often labeled 103, 104, etc.). These can be inserted in either orientation.
3. **Electrolytic Capacitors:** Install the larger, polarized electrolytic capacitors. **These are polarized;** the long lead (anode) goes into the positive pad, and the short lead (cathode), often marked with a stripe on the case, goes into the negative pad.

Step 3: Alarm, Switch, and Power Components

1. **Buzzer:** Solder the buzzer (labeled LS1/Buzzer). The positive side, usually marked with a + on the top of the buzzer case or on the PCB, should be aligned correctly.
2. **Potentiometer:** Install the variable resistor/potentiometer (used to **adjust the alarm threshold**).
3. **Power Switch:** Solder the push-button power switch into its position.
4. **Battery Holders:** Solder the clips/holders for the two CR2032 button batteries (BT1 and BT2) onto the PCB. **Ensure polarity is correct** for the battery connection.

Step 4: Testing and Adjustment

1. **Insert Batteries:** Insert the two **CR2032 button batteries (NOT included)** into the battery holders.
2. **Power On:** Turn the detector on using the power switch. The power indicator light should turn on.
3. **Adjust Threshold:** Rotate the potentiometer to adjust the sensitivity (alarm threshold). Turn it until the alarm is just barely silent or slightly below the threshold of alarming without metal present.
4. **Test Detection:** Bring a small metal object (like a coin) near the large detection area on the PCB. The detector should activate the **buzzer sound and the red LED light flashing alarm**. The maximum detection range is 3–5cm.