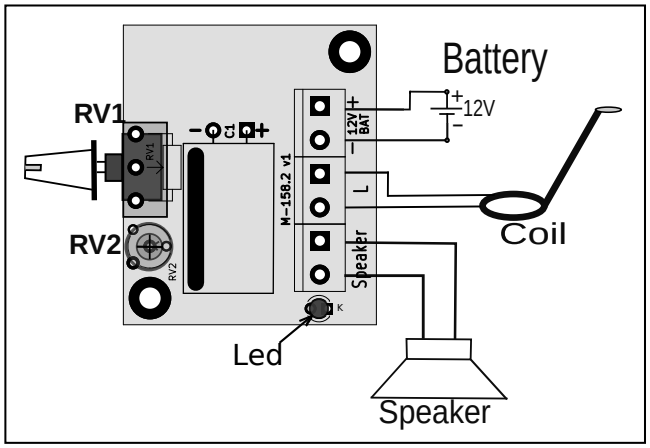
Connection diagram



M158.2v1

Pulse induction metal detector

The kit includes:
- assembled circuit board; manual.
Store under normal climatic conditions
Shelf life Unlimited

EN

Assembling and setting up a metal detector

Connect an 8-32 Ohm **speaker** 0.5-1.0 W to the Speaker contacts. Connect the coil to the L contacts. To contacts **BAT (+/-12V)** connect power supply 9-14 Volts, **observing the polarity**! (Preferably from a 12 V battery, from 1.2 Ah)

Once again check the connection and fastening of the PCB !!! Before turning on the module, make sure that there are no metal and electrical elements and devices in the coil coverage area: such as a mobile phone, a soldering iron, a ring on your finger, coins in your pockets, metal on clothes, huge fittings can also be in the concrete floor and walls and affect the setting module).

After applying power (preferably 12V from the battery), using the knobs of the variable resistors , RV1-fine tuning and RV2-coarse tuning, first with the trimming resistor RV2, and then with the variable resistor RV1, reach the limit of the module operation - the moment at which the sound and light pulses are about to disappear or appear. Slightly reducing the position of the variable resistor RV1 from this position, achieve "silence". **The maximum sensitivity is reached at the threshold of the appearance of sound in the speaker.** The device is configured and ready to work. If desired, the calibration can be repeated at any time.

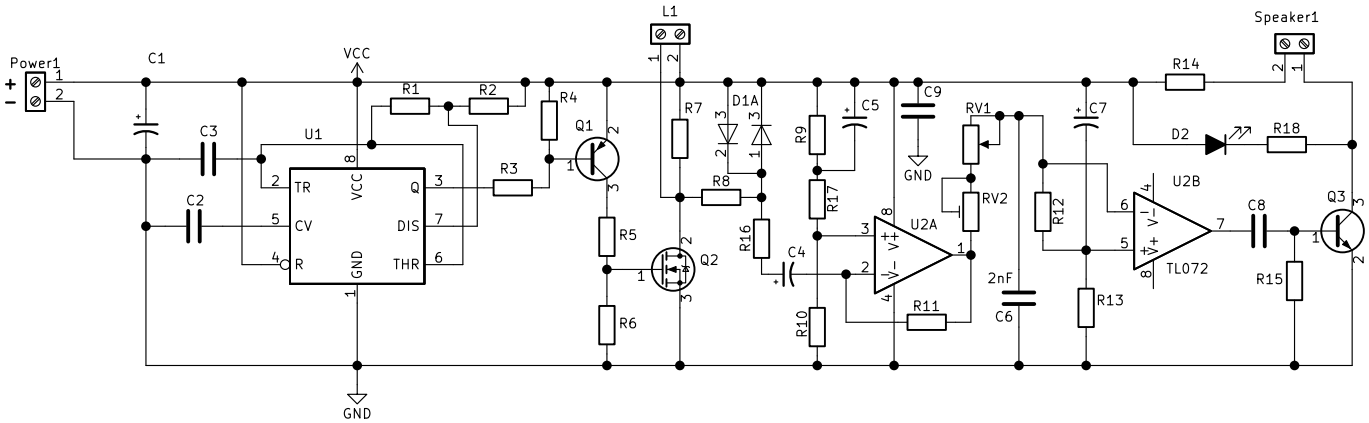
For the manufacture of a search coil, you need a rigid non-metallic mandrel Ø 200- 250 mm, copper winding enameled wire PEV (Ø0.4 - 0.6 mm) 20 meters long, copper stranded insulated wire 2x1.5 mm2 120 - 150 cm long for connection board coils. Wrap 25 turns of winding wire tightly on the mandrel. ends fasten the wires and by soldering connect them with a stranded insulated wire with board to contacts L1.

The M158.2v1 module is a soldered and tested printed circuit board designed to assemble a device that allows you to detect objects made of ferrous and non-ferrous metals by sound and light indication.

Specifications

Coin detection depth, to 20 - 22 cm
Depth of detection of large objects, 100 - 120 cm
Supply voltage, 9 - 14 V
Current consumption, 60 - 70 mA
Impulse current consumption, 1 - 2 A
Board dimensions, 45 X 43 mm
Included Instructions in English.

Electrical circuit diagram



The device consists of two main nodes: transmitting and receiving. The transmitting node consists of a pulse generator on the U1 chip (NE555) and a powerful key on transistors Q1, Q2. The receiving node is assembled on a U2 chip, a D1 diode assembly, on R7-R18, C4-C8 and a Q3 transistor. The excitation signal from pin 3 of U1 is transmitted periodically to the sensor coil L1, through Q1, Q2 in the form of pulses with a duration of 125-150 μs and a frequency of 125-150 Hz. From conductive objects with a pulsed current in the coil L1, damped eddy currents are induced, which excite a damped electromagnetic field. Depending on the conductive properties and size of the object, the signal changes its shape and duration, standing out on the detector D1A, R7, R8. Further, the signal, amplified by U2A, enters the useful signal selection circuit assembled on RV1, RV2, C6, R12, R13, C7, U2B. By adjusting the resistances RV1, RV2, the maximum sensitivity of the device is adjusted: a state in which the signal is about to disappear and no longer passes through the response threshold to the output speaker and to the D2 LED. And, if we now bring metal to the coil, then the signal, having increased slightly, overcomes the response threshold and enters the speaker and LED D2, signaling that "there is a find." If desired, you can refuse to use the speaker and use only the LED.