This ULU

The *ULU.54 Sound sensor* detects sound when it is louder than an adjustable threshold.

Used parts

The following standard parts are used:
1x casing 50 x 25 x 25mm;
2x 2mm signal connector;
2x black O-ring 9 x 5 x 2mm;
1x power connector;
1x 3mm round LED ;
1x resistor to dim the LED;
1x LED holder;
1x micro (G6K-2F-Y-5VDC) relay;
1x fly back diode (1N4148);
1x M3 5mm male/female standoff;
1x M3 countersunk bolt;
1x M3 nut.

The following extra parts are used
1x 1K resistor;
1x s8850 transistor;
1x sound sensor;
1x 10K potentiometer;
1x 220 µF capacitor;
1x 15mm knob.

Construction

The standard ULU specifications are applicable as specified in the datasheet *ULU.00 – Common specifications*.

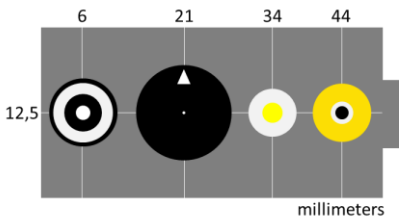

Figure 1 – Drill guide

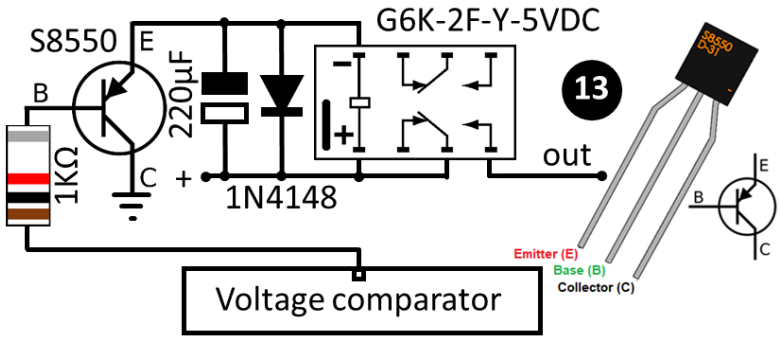

Figure 2 – Schematic

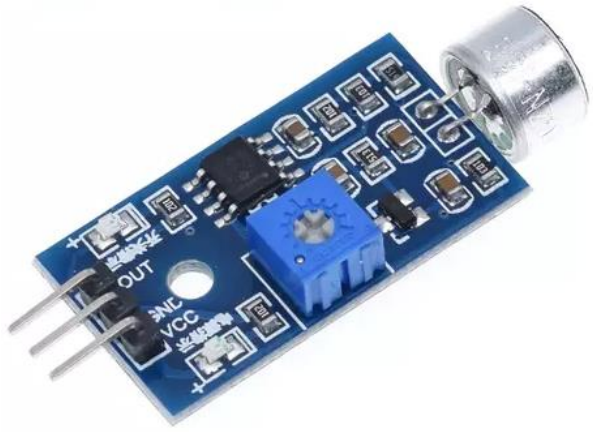

Figure 3 – The used sensor

Figure 4 – Finished ULU

First, the pin header and potentiometer need to be desoldered from the used sensor (**Error! Reference source not found.**). The easiest way is to cut both components to pieces and desolder the pins one by one. Then a chirurgical clamp is clamped on one of the pins to draw it downwards and this part can be

desoldered with a common soldering iron. After that, a desoldering cleaning rod or a small PCB drill will open the hole.

Wires are used to connect the three holes in the PCB to the corresponding pins of the panel mounted potentiometer. De solder connections of this potentiometer, the transistor with corresponding resistor and relay with corresponding diode and capacitor and are insulated with shrink fit tube. A capacitor is necessary to reduce the sensitivity to sound waves, resulting in a vibrating relay.

In the bottom of the enclosure a 3mm hole is drilled and countersunk to fit a M3 countersink bolt. Be sure to drill this hole not too close to the end, otherwise the sensor will not fit. Also ensure that the hole is drilled at the correct end of the enclosure, otherwise the top part of the enclosure will not fit. The bolt is used to attach a 5mm female/male standoff to the casing. A nut is used to attach the PCB to the standoff. For the microphone another hole (10mm) is drilled in one of the cover plates.

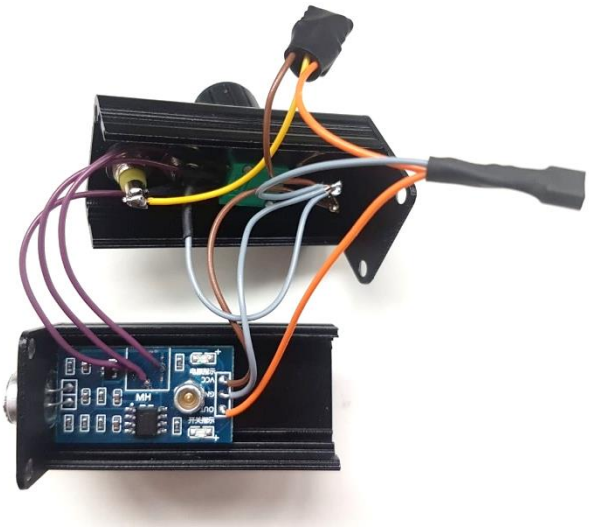

Figure 5 – ULU inside

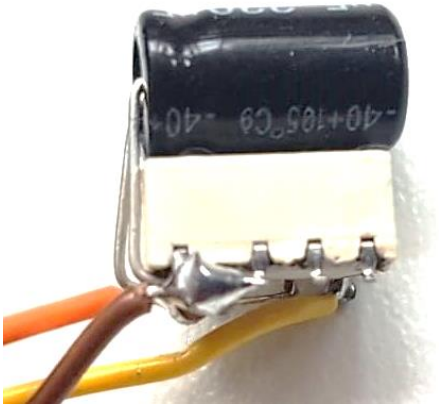

Figure 6 – Relay with diode and capacitor

Usage

This ULU can be used to detect sound or to convert morse-sound into a signal. With the threshold knob the sensitivity can be adjusted.

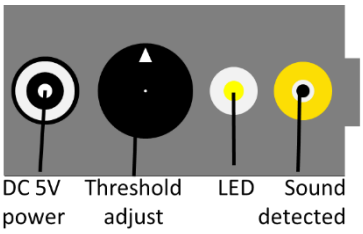

Figure 7 – Controls and connectors

Figure 8 – The microphone on the front side