

## This ULU

The *ULU.56 Laser* sends a laser beam. In combination with the *ULU.55 Light sensor* it can be used to make a laser data connection.

## Used parts

The following standard parts are used:

- 1x casing 50 x 25 x 25mm;
- 1x 2mm signal connector;
- 1x 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 1-pole ON-ON switch;
- 1x 8mm M3 countersunk bolt;
- 1x M3 nut.

The following non-standard part are used:

- 1x a KY-008 650nm 5V 5mW red laser;
- 2x 8mm x 1.6mm bolt;
- 2x 1.6mm nut;
- 1x piece of 20mm aluminum strip.

## Construction

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

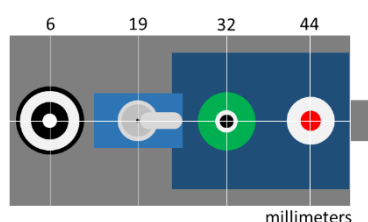


Figure 1 – Drill guide

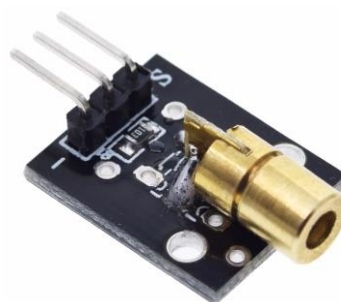


Figure 2 – The used laser

First the pinheaders are desoldered. I found it useful to cut the three pins apart. Then a surgical clamp is clamped on one of the pins to draw it downwards and this pin can be desoldered with a common soldering iron. After that a desoldering cleaning rod or a small PCB drill will open the hole.

A small piece of aluminum strip is used to mount the laser. Two M1.6 bolts are used to attach the laser PCB to the aluminum strip. In the bottom of the enclosure a 3mm hole is drilled to fit the M3 countersink bolt. Be sure to drill this hole not too close to the end, otherwise the laser will not fit. Also ensure that the hole is drilled at the right end of the enclosure, otherwise the top part of the enclosure will not fit. A 3mm hole is also drilled in the aluminum strip, so the bolt can be used to attach the strip to the casing as shown in Figure 3. For the laser head another hole (5mm) is drilled in one of the cover plates.

The schematic is very simple. The ground of the laser is connected to the power plug. The plus of the laser to both the switch and the 2mm socket. The other pole of the switch is connected to the power plug.



Figure 3 – ULU inside



Figure 4 – Finished ULU

## Usage

In combination with the *ULU.55 Light sensor*, this ULU can be used as laser detector beam that will detect if the beam is broken by an object. Another application is a laser data link, where information is transmitted by switching the laser beam on and off.

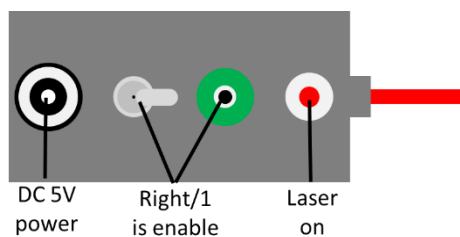


Figure 5 – Controls and connectors