

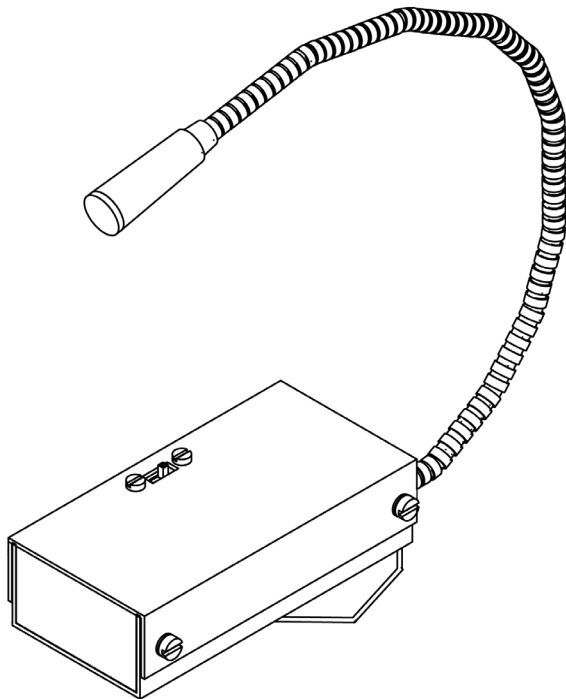
OPITEC

Hobbyfix

111.264

LED-Reading lamp

Metal



Necessary tools:

Metal drills $\varnothing 2,5/3/4/6$ mm
 Thread Tap M3mm
 90°-Countersink
 Fretsaw with blade for metal
 File assortment
 Vice with jaw protectors
 Pencil
 Ruler
 Soldering iron
 Screwdriver

Please Note

The OPITEC range of projects is not primarily intended as toys for young children. It is for teaching, designing and making to ensure that pupils experience a range of tools and processes

PARTS LIST				
	Stückzahl	Size (mm)	Description	Teile-Nr.
Aluminium sheet	1	150x80x1	Housing	1
Aluminium rectangle	1	75x20x10	Housing	2
USB-LED-Lamp	1		Lighting	3
Micro slide switch	1	19x6	Switch	4
Alumnium wire	1	250x1,6	Clip	5
Machine screw	8	10x3	Lamp fixing	6
Machine screw	1	16x3	Lamp fixing	7
Nuts	2	M3	Switch fixing	8
Washers	6	M3	Fixing	9
Clips	1	3-7	Lamp fixing	10
Battery clip	1		Connection	11
Widerstand 220 Ohm	1		Vorwiderstand	12

INSTRUCTIONS

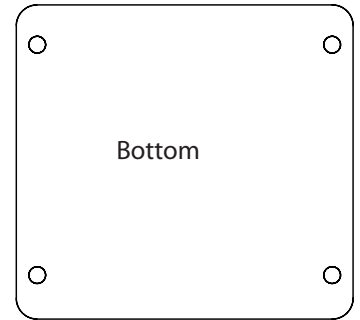
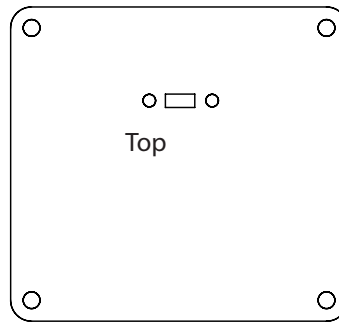
General:

For cutting the aluminium sheet use a fretsaw with a metal cutting blade

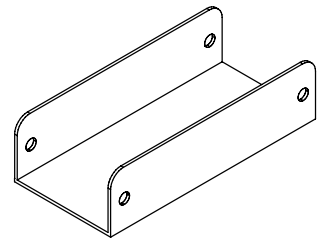
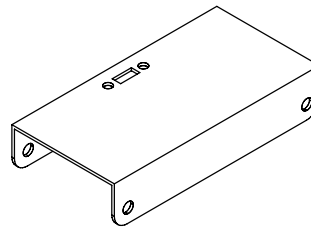
1. Cut the Aluminium-sheet (1) to the pattern (Page 3) with a fretsaw. Round the edges with a file and drill the holes $\varnothing 3 + \varnothing 4$ as shown in the pattern. Make the slot for the switch. To do this drill this make 3mm dia holes and then use a fretsaw File and clean up the edges, use a countersink to clean up any burr on the holes

Note:

For better drilling results, firstly bend the top and the bottom and then drill the 4mm dia holes together



2. Bend the lid and the bottom according to the pattern (Page 4) in a vice or folding bars as shown.



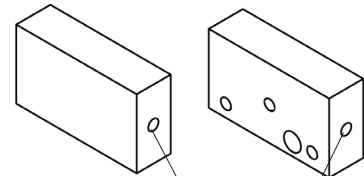
3. Take the Alu-Rectangle (2) according to the plan (Page 4). Mark the holes and drill them according to size!

Achtung!

Drill the side holes only ca. 10mm deep! Do not drill through!

Tap a M3 thread in the 2.5 dia mm holes.

Note: Use a thread cutting paste or oil!



Drill ca. 10mm deep!



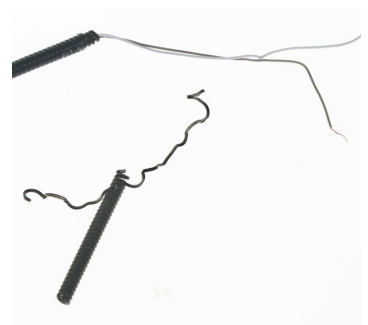
4. In the pack is a LED lamp with a USB plug on the end. This plug must be cut off with a pair of side cutters (See Dia 4)



5. Bend the outer metal casing at about 50mm on the lamp lead. Once the cable has been bent you can unwind some of the spiral metal casing.

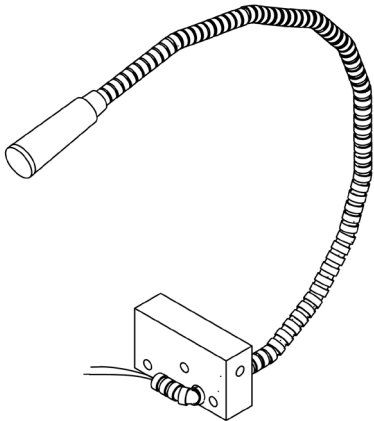


6. Snip off this outer cable casing with side cutters (Dia 10)

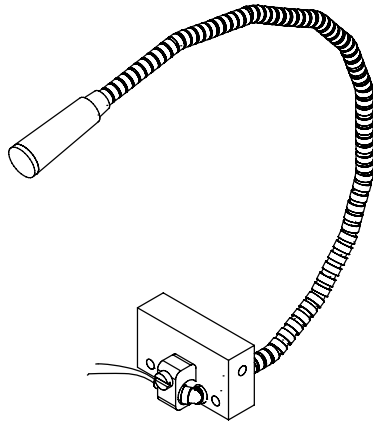


7. Shorten the inner cable to about 10mm, remove the insulation and twist the ends. Tin the wire ends.

INSTRUCTIONS



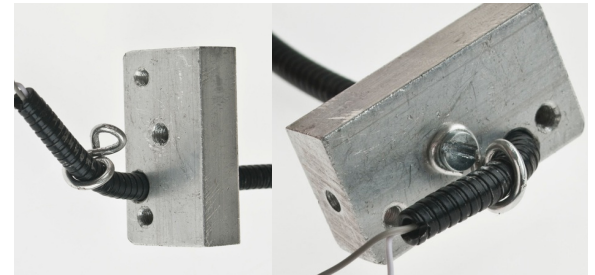
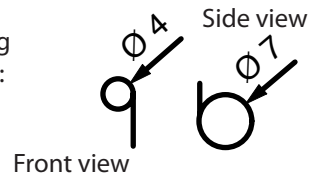
8. Insert the LED lamp in the 6mm hole in the alu rectangle and 15mm into the inside



9. Variation 1:
Widen the hole in the clip to 3mm dia.. Bend the lamp as wide as possible (possible ca. 90°) and with the clip and screw (7) fix it to the alu rectangular block (7)

Note
The lamp arm is under pressure - Hold it tight whilst inserting the bulb

Bending pattern:

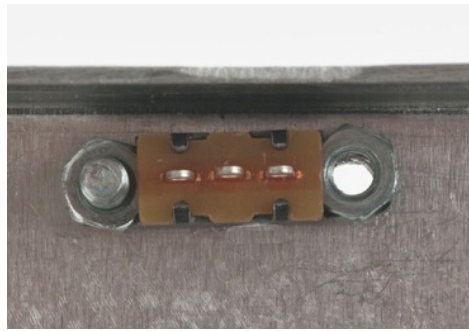


10. Variation 2:
Cut off 50mm from the alu wire as shown Take the machine screw (7) add screw it to the rectangular aluminum block:
The lamp arm is under tension - so hold it tight when screwing it in

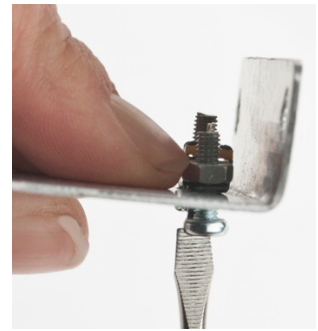


11. Drill the holes on the micro switch out to 3 mm dia. (see diagram):

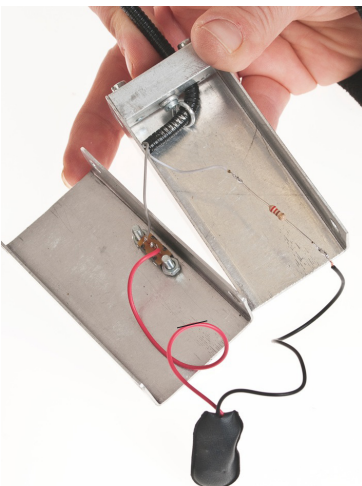
Note :
Hold the switch carefully in the vice!



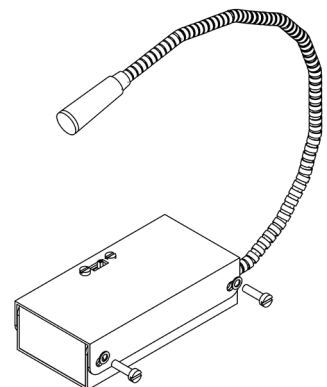
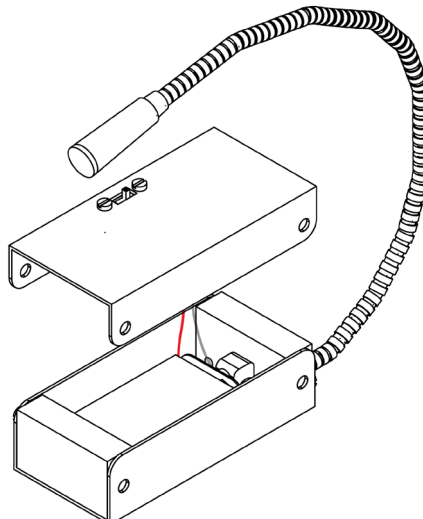
12. Mount the micro switch on the inside of the lid and screw it in place



13. Wind the nuts carefully on the machine screws (6) from underneath make them finger tight . If the holes are too tight use a needle file to enlarge them.



Die Beine des Widerstandes mit Klebeband isolieren, da sonst Kurzschlussgefahr!



INSTRUCTIONS

14. Insert the rectangle into the bottom part of the case and screw it in place. Solder the dark grey wire on the lamp to the outer part of the switch. Solder the light grey cable from the lamp to the black cable on the battery clip (11). Insulate the joint. Solder the red cable on the battery clip (11) to the middle on the switch.

Note:

Strip 5mm insulation from the cable ends and twist them together before soldering. The cables that are connected to the switch should be shortened by 4mm

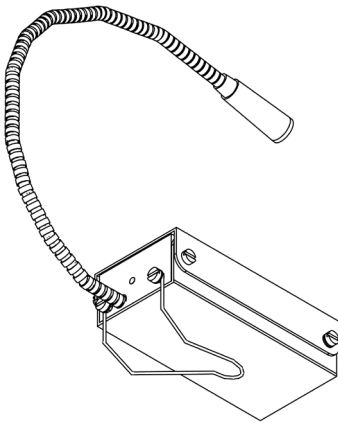
15. Connect a 9volt battery

Set the second alu.rectangle in place. Battery and cable inside and place the lid on.

Note:

Release the alu rectangle again!

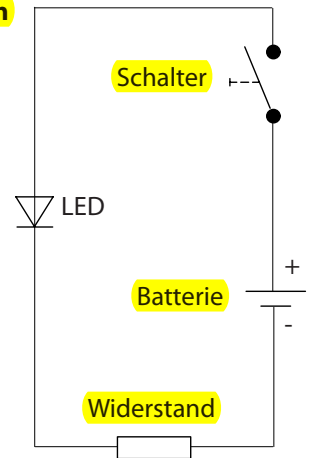
Connect the lid with four screws and washers as shown in the diagram



16. Shorten and bend the alu.wire (6) to 200mm as shown in the pattern (4) and fix it with 2 x machine screws (8) and two washers (8) to the back of the Aluminium rectangle!

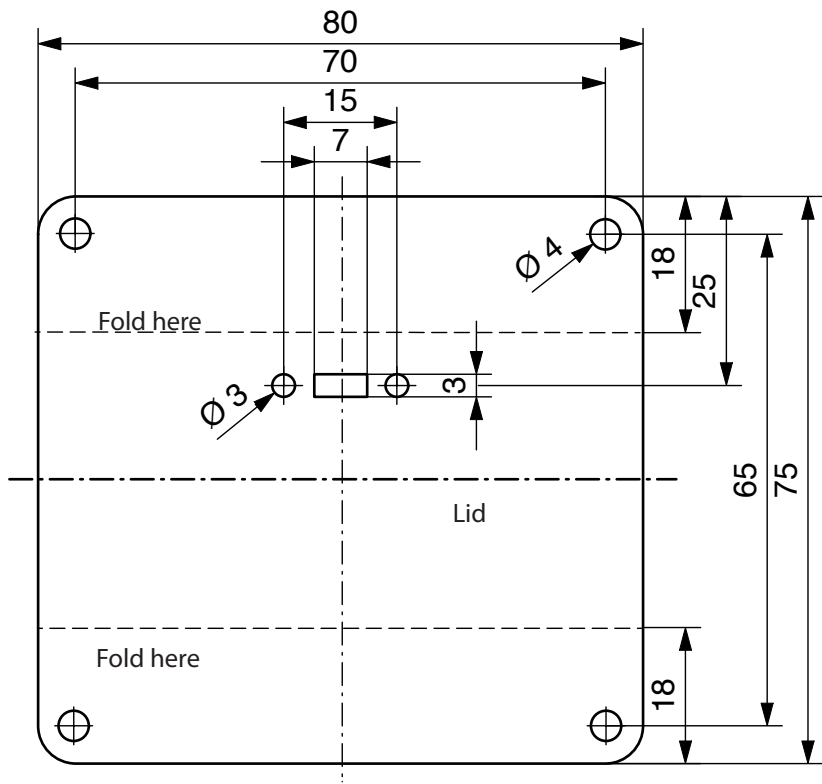
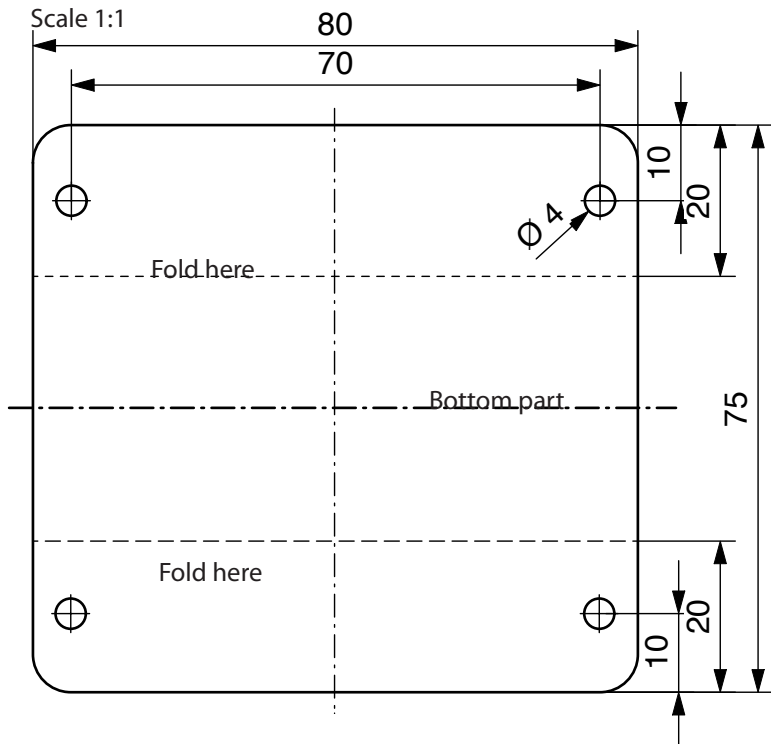
Ready!

Schaltplan

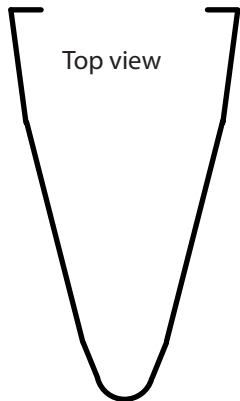


INSTRUCTIONS

Pattern
Scale 1:1

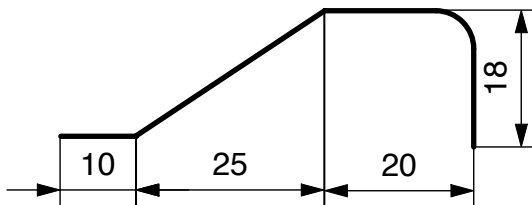


Bending pattern
Lamp clip
Scale 1:1

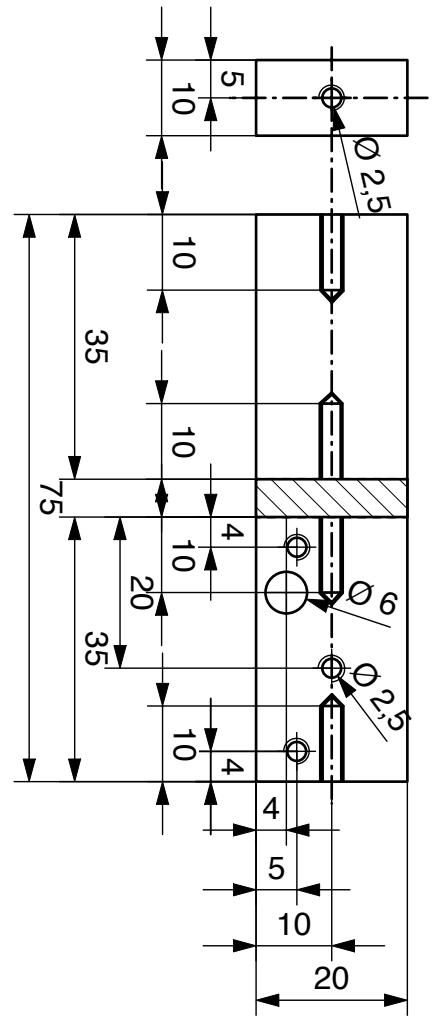
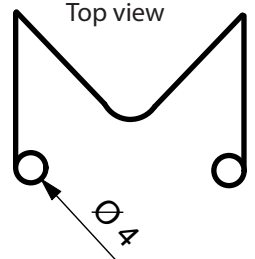


Top view

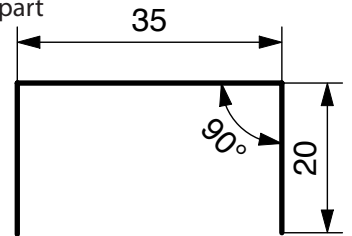
Side view



Top view



Bottom part



Lid

