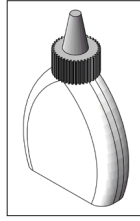
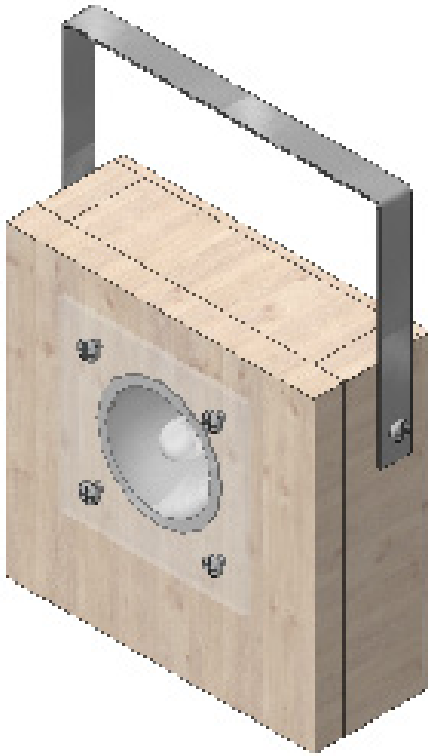


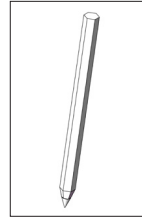
113.989

Battery Torch with LED

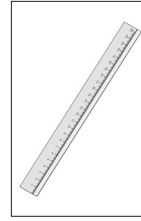
Required Tools:



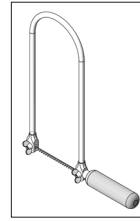
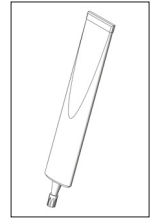
Wood Glue



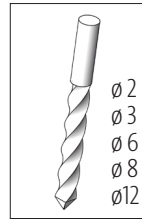
Pencil



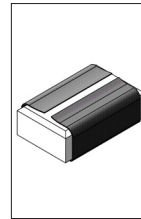
Ruler

Jigsaw or scroll
saw

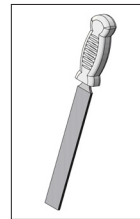
Superglue

Phillips
screwdriver

Drill bit



Sandpaper



File

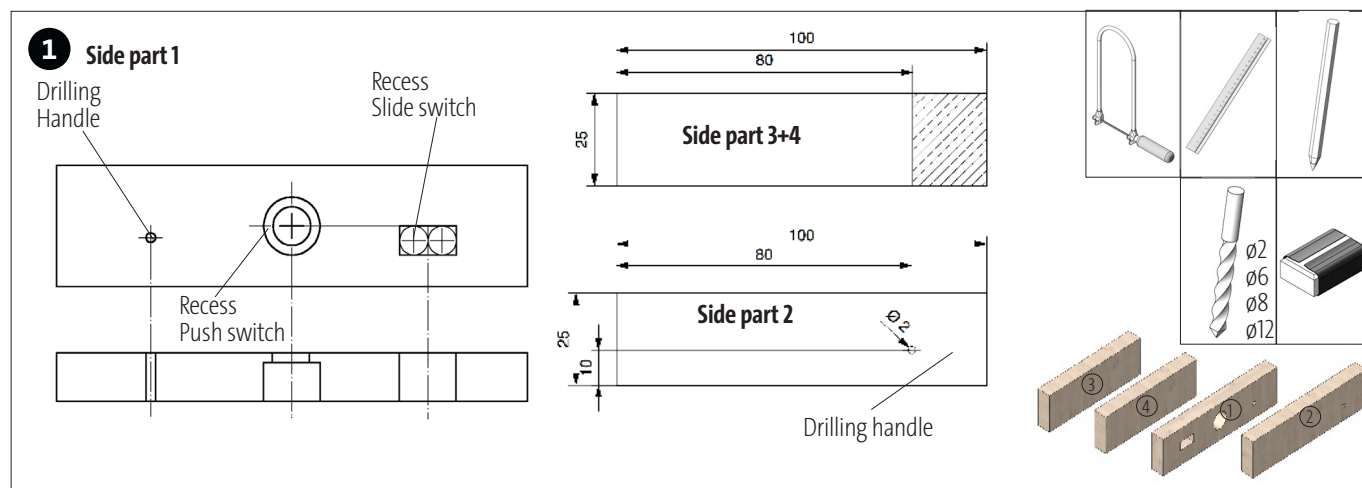
Soldering iron
and solder

Please Note:

The Opitec Range of projects is not intended as play toys for young children. They are teaching aids for young people learning the skills of craft, design and technology. These projects should only be undertaken and operated with the guidance of a fully qualified adult. The finished projects are not suitable to give to children under 3 years old. Some parts can be swallowed. Danger of suffocation!

Components List	Quantity	Size (mm)	Description	Part No.
Wooden board	1	100x100x10	Lid board	1
Wooden strips	4	100x25x10	Frame strips	2
Plywood	1	100x100x3	Back side	3
Battery holder	1		Power supply	4
Aluminium strips	1	250x10x2	Handle	5
Acrylic glass	1	60x60x2	Cover LED	6
LED super bright	1	Ø10	Lighting	7
Slide switch	1	19x6	On/off switch	8
Push switch	1			9
Reflector	1	Ø40	Reflector	10
Connecting wire	1	500	Wiring	11
Tapping screw	6	2,9x13	Screw connection	12
Tapping screw	4	2,2x6,5	Screw connection	13
Washer	2	4,9/9	Spacer handle	14

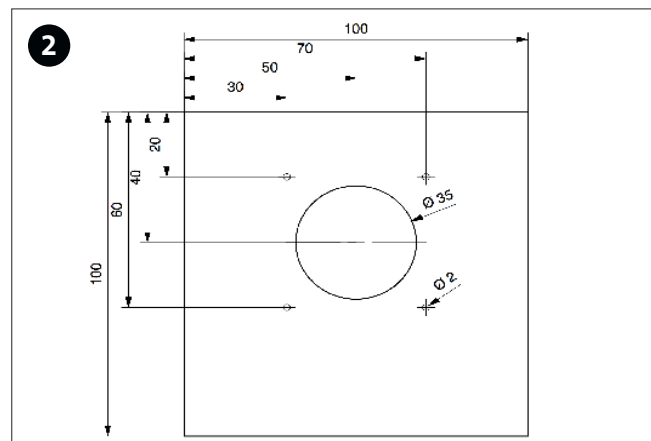
Instructions 113.989
Battery Torch with LED



For the side parts, shorten 2 of the wooden strips (2) to 80 mm with the jigsaw or scroll saw (side parts 3+4). Then take one of the two remaining wooden strips (100x25 mm / side part 1, pag. 7). For the recess for the micro slide switch (8), drill 2 holes (Ø 6mm) next to each other. Then work out the long hole cleanly with a key file. For the push switch drill a Ø 8mm hole. Then drill a blind hole Ø 12mm approx. 8 mm deep.

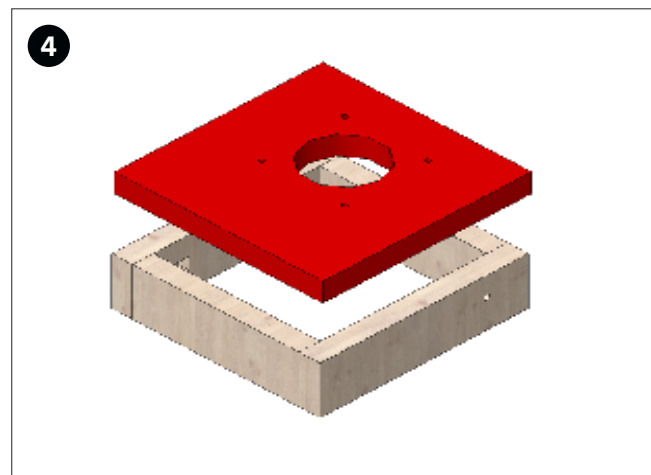
Note: Make sure that at least 2 mm of materials remains from the wooden strip.

For the handle, drill a Ø 2mm hole. Drill a 2 mm hole in the last strip (2) also for the handle (side part 2).

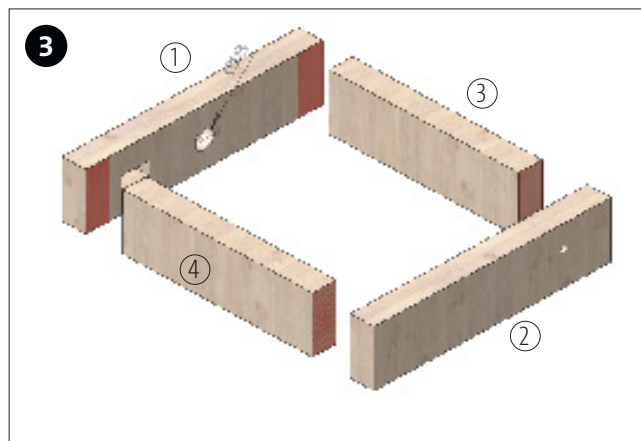


Transfer the position for the reflector opening from the template (page 5). Use a Ø 3mm drill bit to drill a hole for the saw blade to pass through. Then guide the blade and saw out the reflector opening (Ø 35mm).

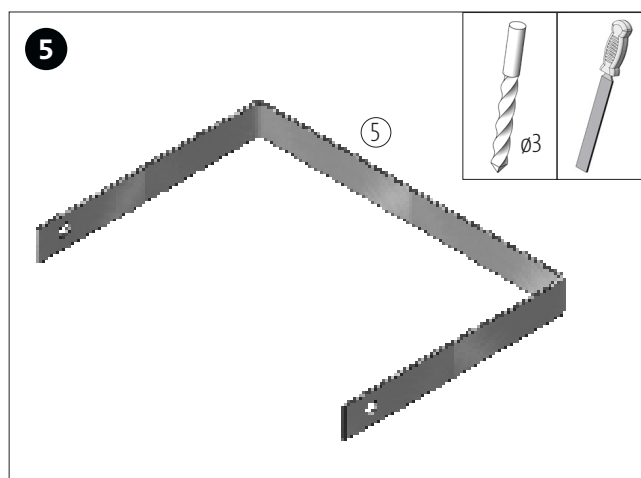
Transfer the position of the 4 drillings for the protective screen from the template and drill through them with a Ø 2mm drill bit.



Glue the lid plate to the finished frame as shown.

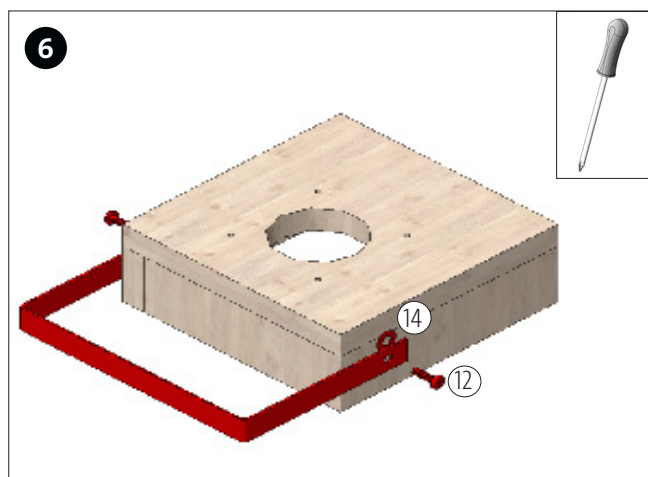


Glue the finished frame strips together on the specific glue surfaces as shown. Make sure that the 8 mm hole for the push switch of strip 1 points inwards. Let the glue dry well.

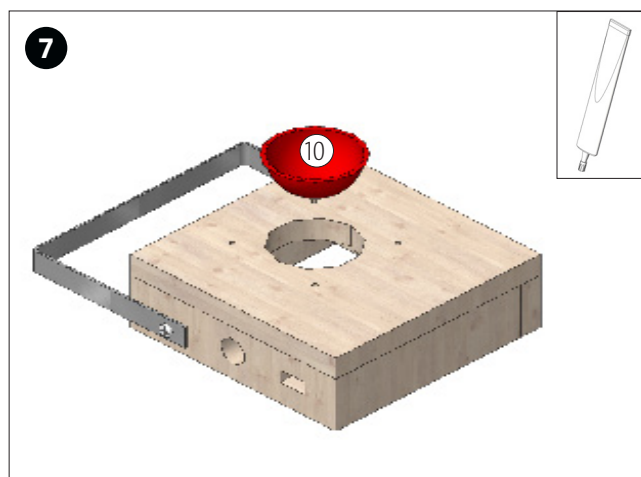


Deburr the aluminium strips (5) cleanly with a file. Drill the Ø 3mm holes according to the template (page 5). Then bend the aluminium strips according to the bending template (see page 5).

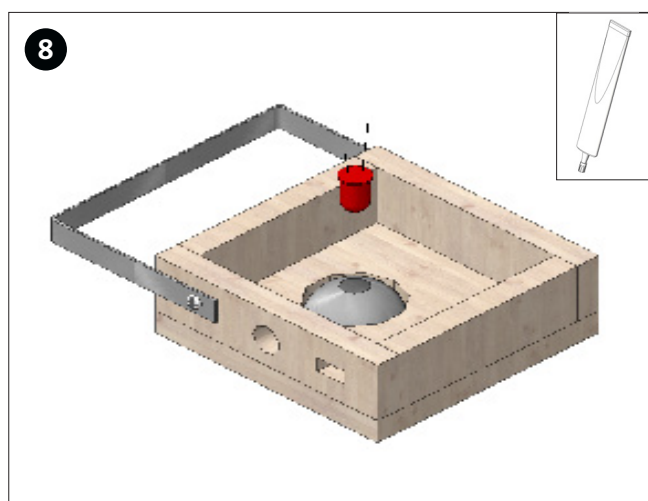
Instructions 113.989
Battery Torch with LED



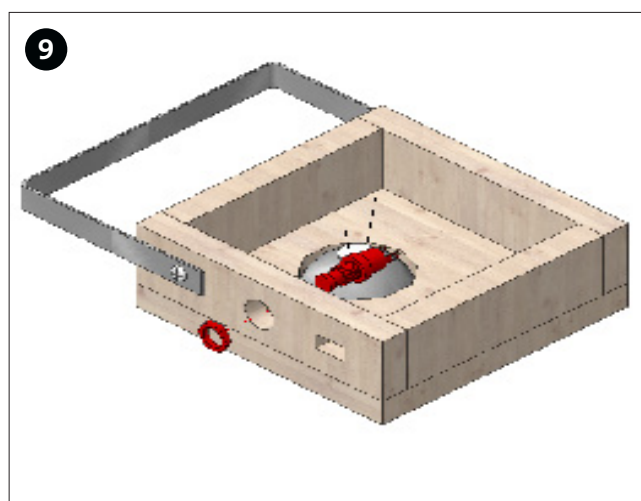
Screw the handle tight from both sides with a washer (14) and a tapping screw (12) as shown.



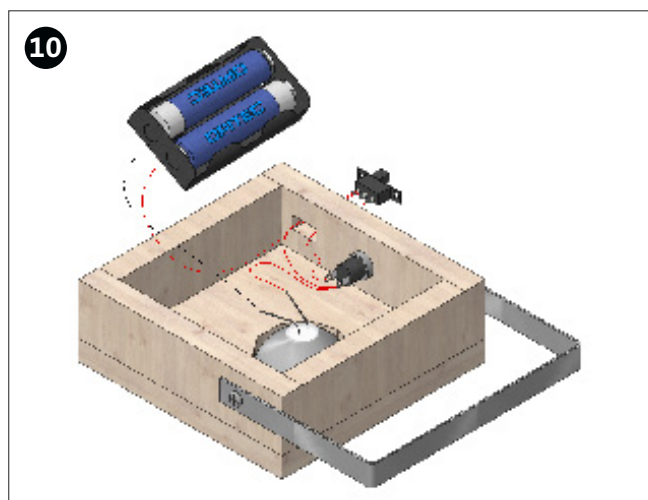
Insert the reflector (10) into the opening ($\varnothing 35\text{mm}$) into the opening as shown. If necessary glue it with superglue.



Insert the LED (7) into the opening in the reflector (10) as shown. If necessary glue it with superglue.



Insert the push switch (9) into the blind hole provided from the inside and screwtight from the outside with the nut provided.

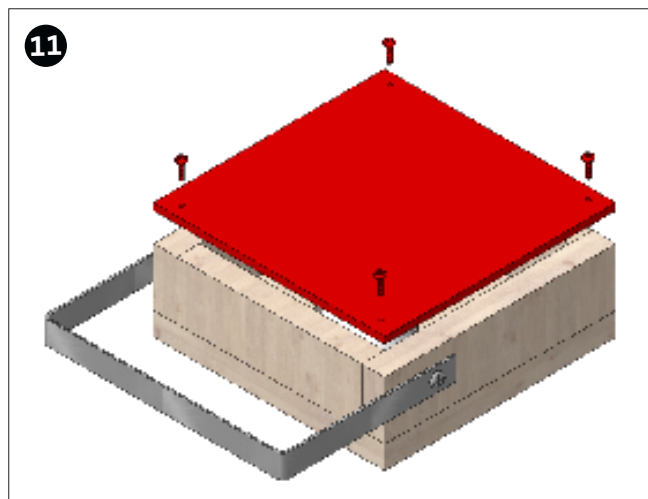


Note: Wiring can also be done without soldering!

Cut 3 approx. 80 mm long pieces from the connecting wire (11) and strip the insulation on both sides. Connect a piece of wire (80 mm) to the right connector of the push switch (9), feed it through the slide switch opening and connect the other end to the left connector of the slide switch (8). Guide the red wire from the battery holder through the side panel opening and connect it to the center connector of the slide switch (8). Fix a second wire (80 mm) to the still free (right) connector of the slide switch, lead it through the opening and connect the other end to the left connector of the push switch. Connect the 3rd wire from the left connector of the push switch to the anode of the LED (7). Connect the black wire of the battery holder with the cathode (-) of the LED (7). Finally insert or glue the slide switch into the switch opening.

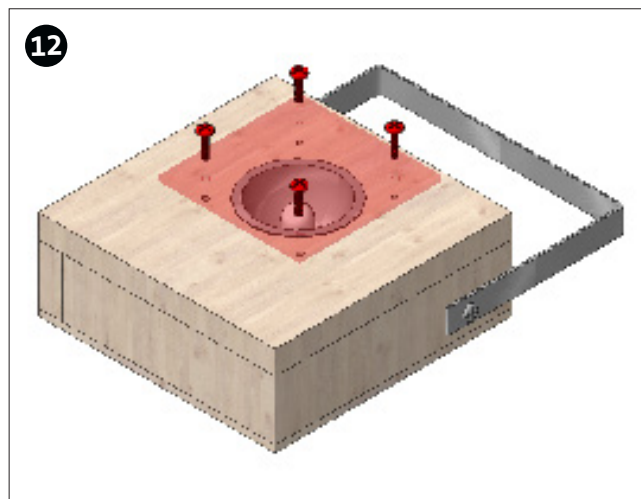
Functional check:

Insert 2 AAA (Micro) batteries in the battery holder. When the slide switch is in the left (up) position, the LED does not light up. If you press the button, the LED lights up. In this position you can enter the Morse code (see Morse Code page 4). If you slide the slide switch to the right (down), the LED lights constantly (lamp).



Place the battery holder (4) and all the wires in the box and asten the base plate with four screws (12).

Note: The battery holder can also be glued.



Fasten the lid (6) with the screws (13) over the reflector. Done!

Note: Do not overtighten the screws or the lid may tear.

MORSE CODE

□	■	A	Alfa
■	■	B	Bravo
■	□	C	Charlie
■	■	D	Delta
□	■	E	Echo
□	□	F	Foxtrott
■	■	G	Golf
□	□	H	Hotel
□	■	I	India
□	■	J	Juliett
■	■	K	Killo
□	■	L	Lima
■	■	M	Mike
■	□	N	November
■	■	O	Oscar
□	■	P	Papa
■	■	Q	Quebec
□	■	R	Romeo
□	□	S	Sierra
■	■	T	Tango
□	□	U	Uniform
□	□	V	Victor
□	■	W	Whiskey
■	□	X	X-ray
■	■	Y	Yankee
■	■	Z	Zulu

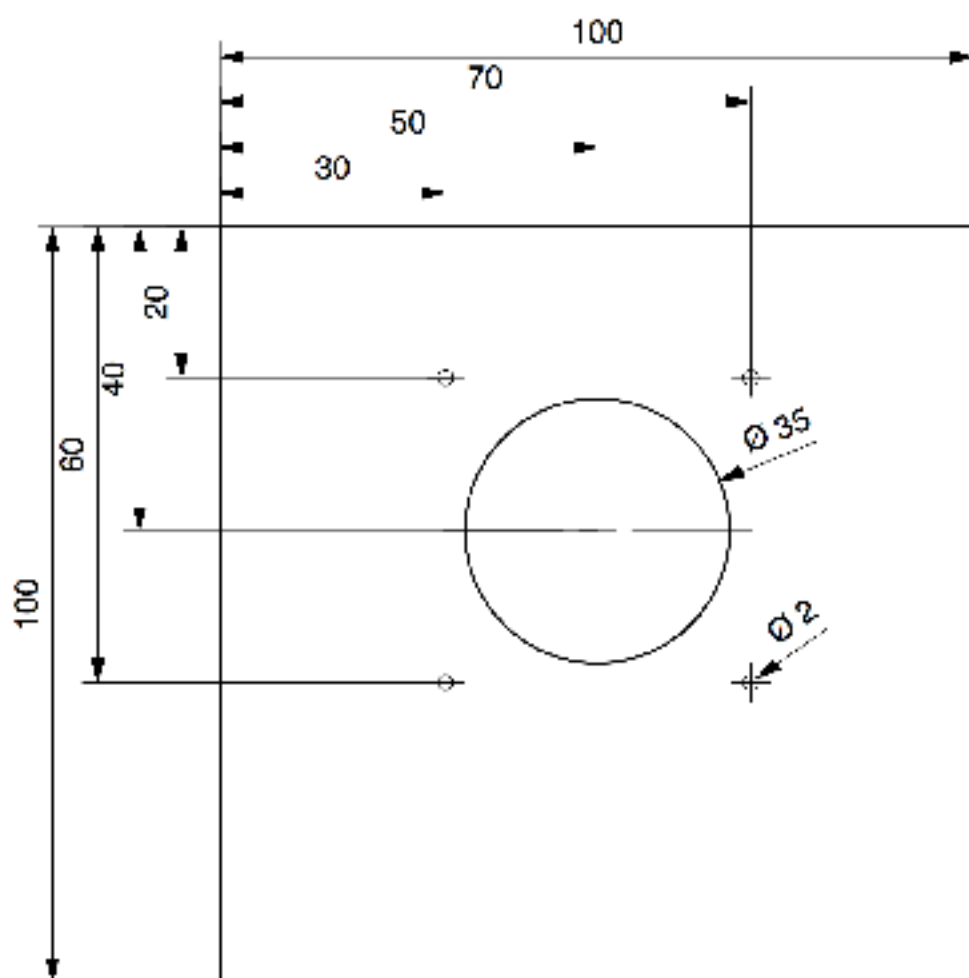
■	■	■	■	■	0
□	■	■	■	■	1
□	□	■	■	■	2
□	□	□	■	■	3
□	□	□	□	■	4
□	□	□	□	□	5
■	□	□	□	□	6
■	■	□	□	□	7
■	■	■	□	□	8
■	■	■	■	□	9
■	■	□	□	■	.
■	□	□	■	□	/
■	□	□	■	■	=
□	■	□	■	□	·
□	□	■	■	□	?
■	□	□	□	■	-
■	■	■	■	□	(
■	□	■	■	□)
■	■	■	□	□	:
□	■	□	■	□	..
□	■	■	■	■	+
□	□	□	□	□	err
■	■	■	■	■	start
□	■	□	■	□	-
□	□	□	■	■	end

Read: □ as "dit", briefly, dots

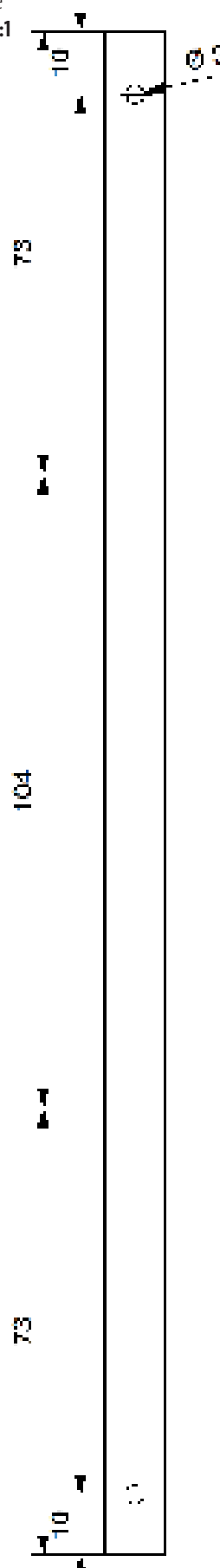
■ as "dah", long, dashes

Instructions 113.989
Battery Torch with LED

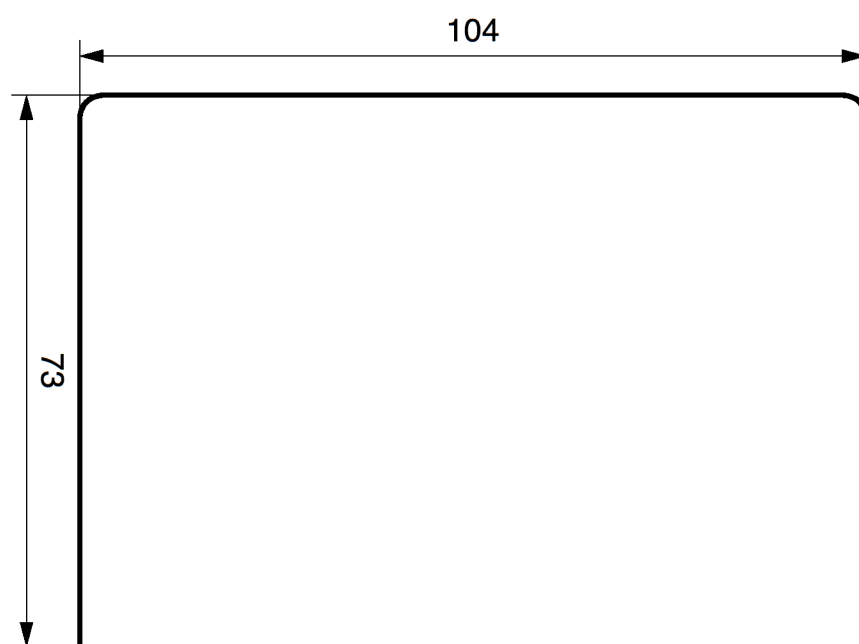
Template Top
Scale 1:1



Handle
Scale 1:1

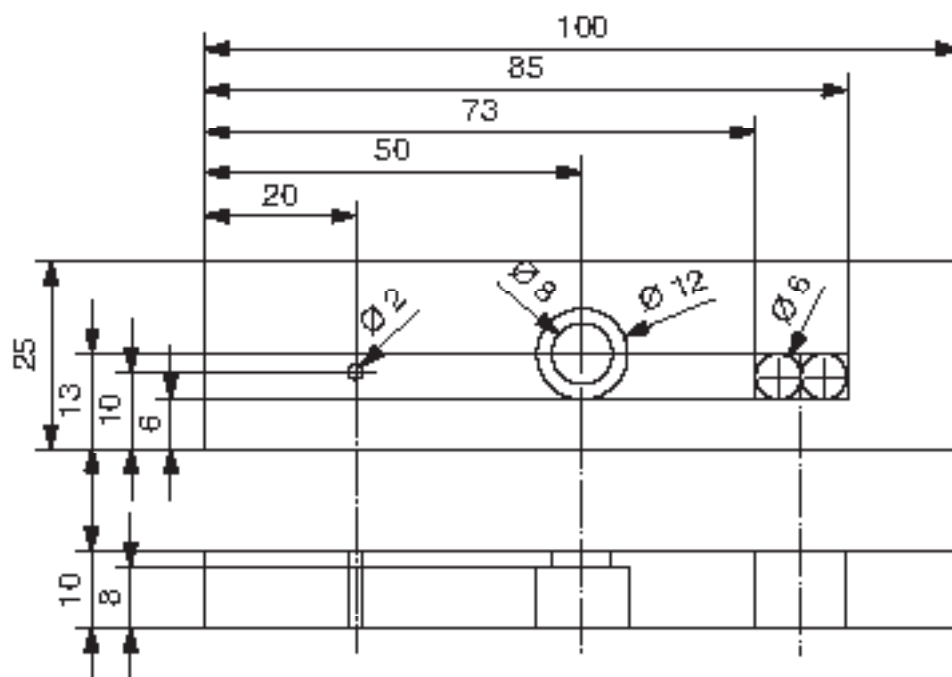


Bending Template Handle
Scale 1:1



Instructions 113.989
Battery Torch with LED

Template Side Part 1
Scale 1:1



Template Base Plate
Scale 1:1

