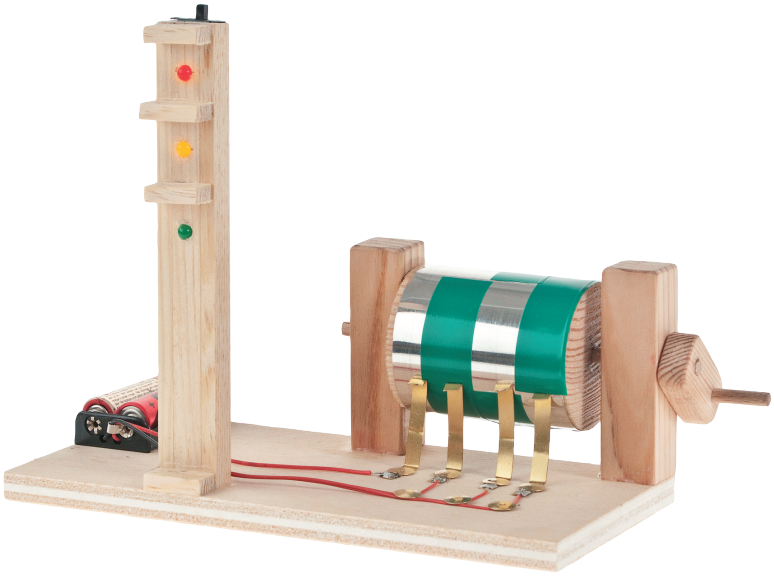
111.529

Traffic lights



Necessary Tools:

Fretsaw
Pencil, ruler
Wood glue, all purpose glue
Soldering iron (Optional)
Workshop file or sandpaper
Side cutters
Wire snippers
Drill
Drill bits ø5 mm
Bradawl

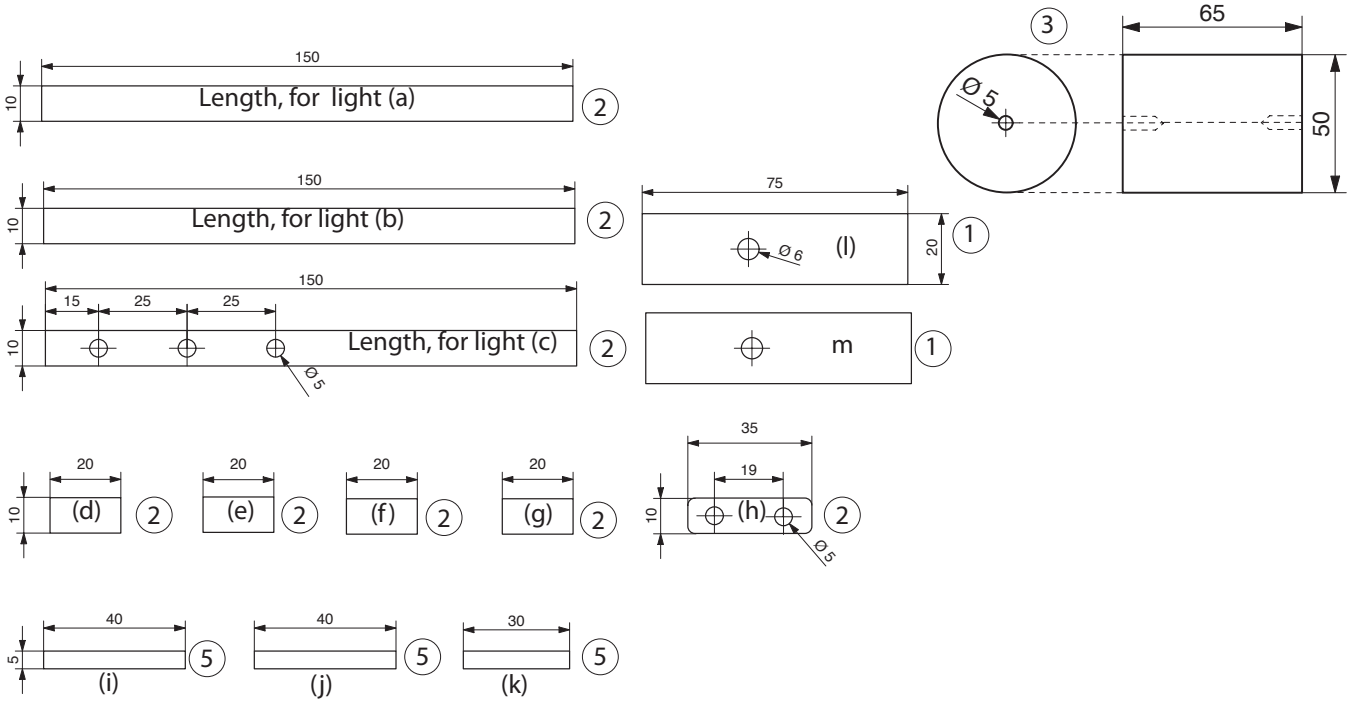
Please Note

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 Technolo- gy.These projects should only be undertaken and tested 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. Dan- ger of suffocation!

PARTS LIST				
	Stückzahl	**Size (mm)**	**Description**	**Teile-Nr.**
Wood strip	1	150x20x20	Halterung	1
Wood strip	4	150x10x5	Ampel, Kurbel	2
Holzrundstab	1	65x50	Kontaktrolle	3
Weissblech	1	180x60x0,,3	Kontaktrolle	4
Rundstab	1	250x5	Achse	5
Sperrholz	1	200x100x10	Grundplatte	6
Messingband	1	200x5,5x0,3	Schleif-Kontakte	7
Isolierband	1	3000x19	Isolierung	8
Batteriehalter	1		Stromquelle	9
Mikro-Schiebeschalter	1	19x6	Schaltung	10
Leuchtdiode rot	1	ø5	Beleuchtung	11
Leuchtdiode gelb	1	ø5	Beleuchtung	12
Leuchtdiode grün	1	ø5	Beleuchtung	13
Schalt-Y-Draht	1	1000x0,9	Verkabelung	14
Reißnägel	10		Befestigung	15

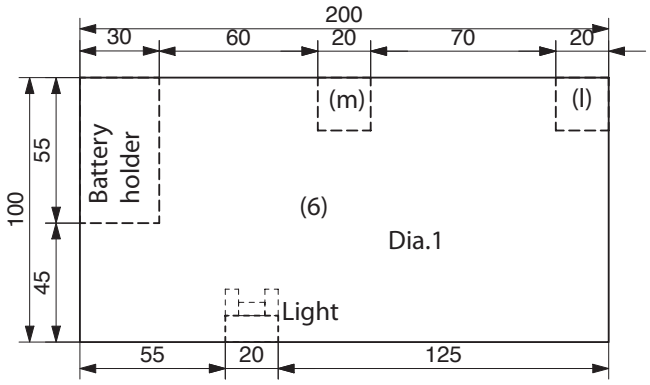
INSTRUCTIONS

1. Take the wood strips (1,2) and the dowel (5) and cut them to length and drill them according to the cutting plan (Seite 5) Sand or file the edges of the of the strip (h) Sand all the sawn ends. Countersink the holes. Take the dowel (3) and drill a ø5 mm ca. 15-20mm deep in the middle of each end.

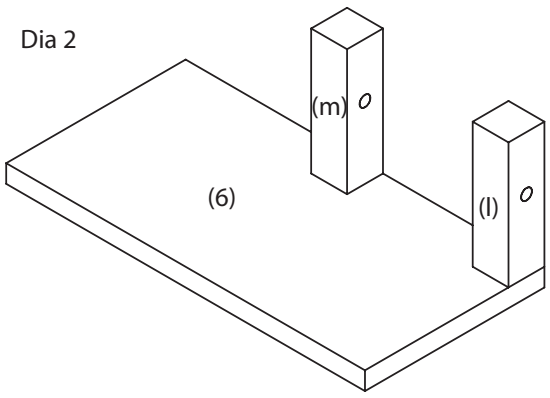


Assembly:

2. Mark out on the base (6) the positions for the parts (l+m) traffic light and battery holder (see diagram 1)



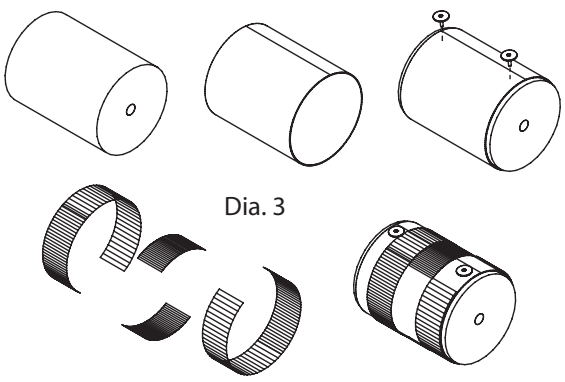
3. Glue the parts (l) and (m) as shown on the base diagram (6) in the marked positions.



4. Wind the thin metal sheet (4) around the dowel (3) and fix it with two drawing pins (15) Cut two pieces (120mm) from the insulation tape(8) Isolierband (8) and two pieces (35mm) and arrage them on the metal covered dowel as shown

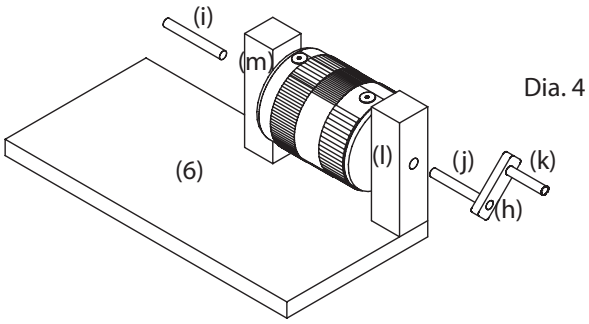
Position of the insulation tape on the metal:

insu-	RED	lation 120mm	
AMBER	35mm	AMBER	35mm
Insulation 120mm			GREEN



INSTRUCTIONS

5. Take the 40mm long dowel (j) and glue one end (h) in the second hole (Part h) of the 30mm long piece (k) Once dry insert the crank through the hole in part (l) . Glue the piece (i) in the opposite hole (m) of the contact roller.



Dia. 4

6. Cut the brass band (7) in 4 equal pieces (50mm) and benad them according to the pattern (Dia. 5) Fix these to the base (6) with drawing pins (15) Note there must be a good contact between the brass strips and the roller .

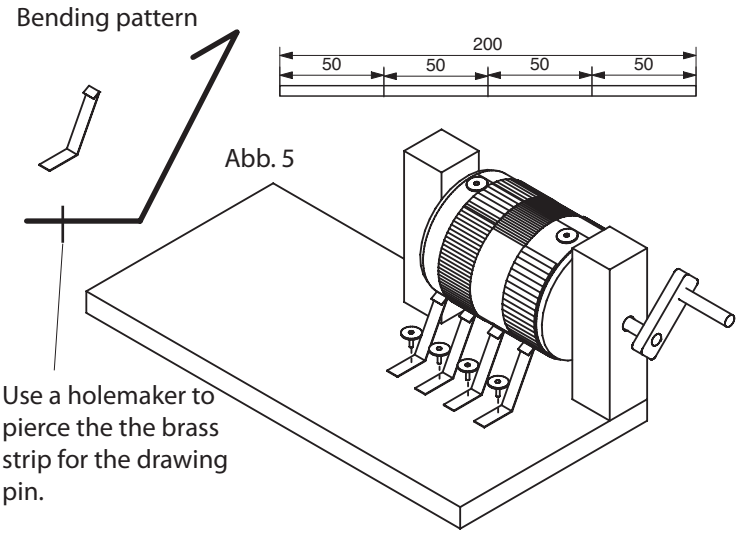


Abb. 5

7. Glue the wooden parts a,b and c together as shown. Glue the parts e d,e and f on the front part of the traffic light (For measurement see Dia.6!) Glue the finished traffic light on the base as shown As a stabiiser add part g.Insert the LEDS (11, 12 and 13) in the back of the holes (ø 5mm) in the strip (c) (see Dia. 6)

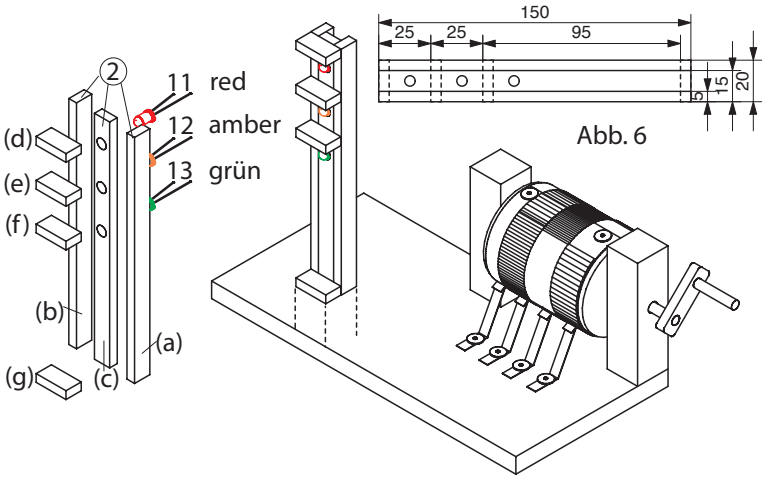
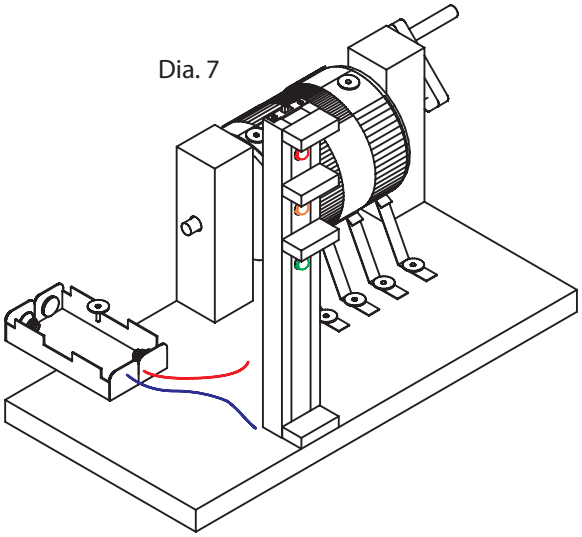


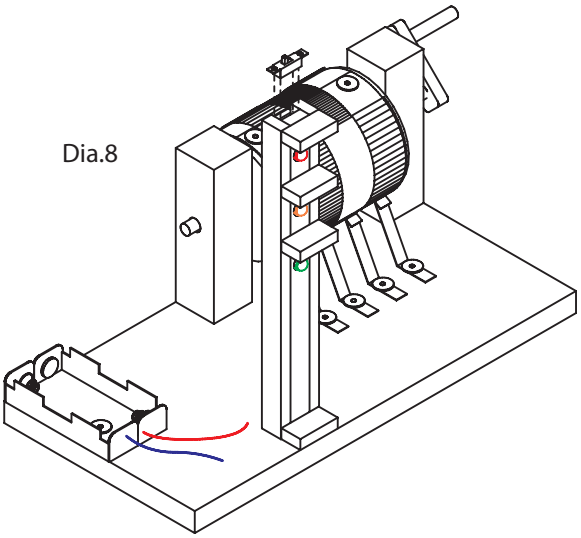
Abb. 6

8. Glue the battery holder (9) on the base with an all purpose glue and a drawing pin (see Dia.7)



Dia. 7

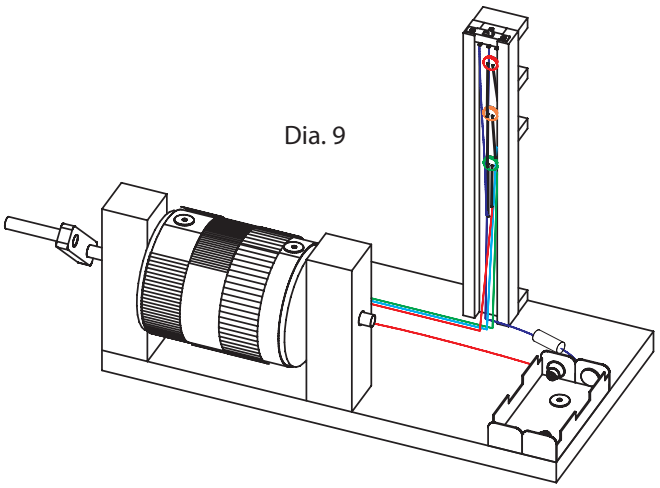
9. Glue the micro switch (10) as shown in the top hole of the light, (See Dia 8)



Dia.8

INSTRUCTIONS

10. Bend the Cathode leg of the red LED (11) down and solder it to Cathode leg of thw amber LED (12) . Then solder the Cathode of the amber LED (12) to the Cathode of the green LED (13). Tak a ca. 60mm long piece of cable (14) and remove insulation from the ends. Solder a connection from the Cathode of the grreen LED (13) to the left hand connection of the switch (10) Take a ca. 100mm long piece of cable (14) remove insulation from the ends and connect the midgle of the switch (10) and the black cable from the battery (9). (See dia. 9) See wiring diagram 2!



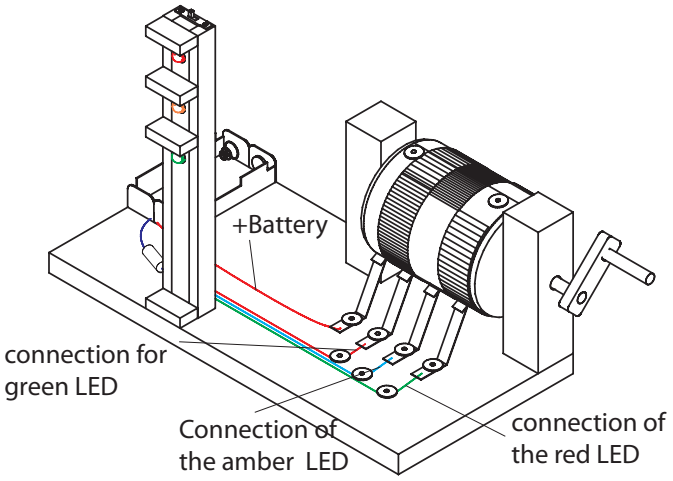
11. Take a ca. 250mm long piece of cable (14) remove insulation from the ends and connect to the annode leg of the red LED (11). Soder the other end to the outer brass strip (See wiring diagram)

    Take more cable (14) ca. 200mm long piece, remove insulation from the ends and connect one end to the Anode of the yellow LED(12) .The other end is soldered to the brass bend of the second brass strip.

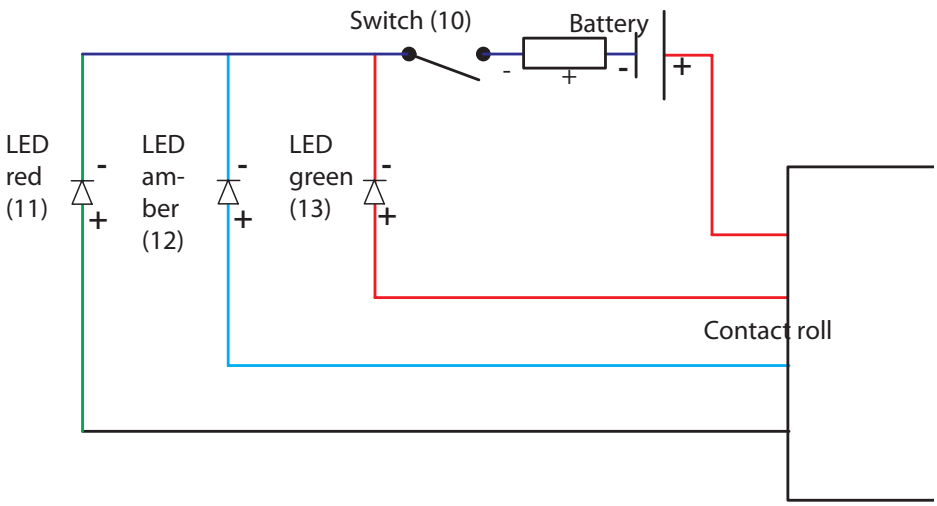
    Solder a further cable piece (150mm) to the Anode leg of the green LED(13) and then to the third brass strip.

    The red cable from the battery holder is soldered with the fourth brass strip. (see dia.10)

    Ready!

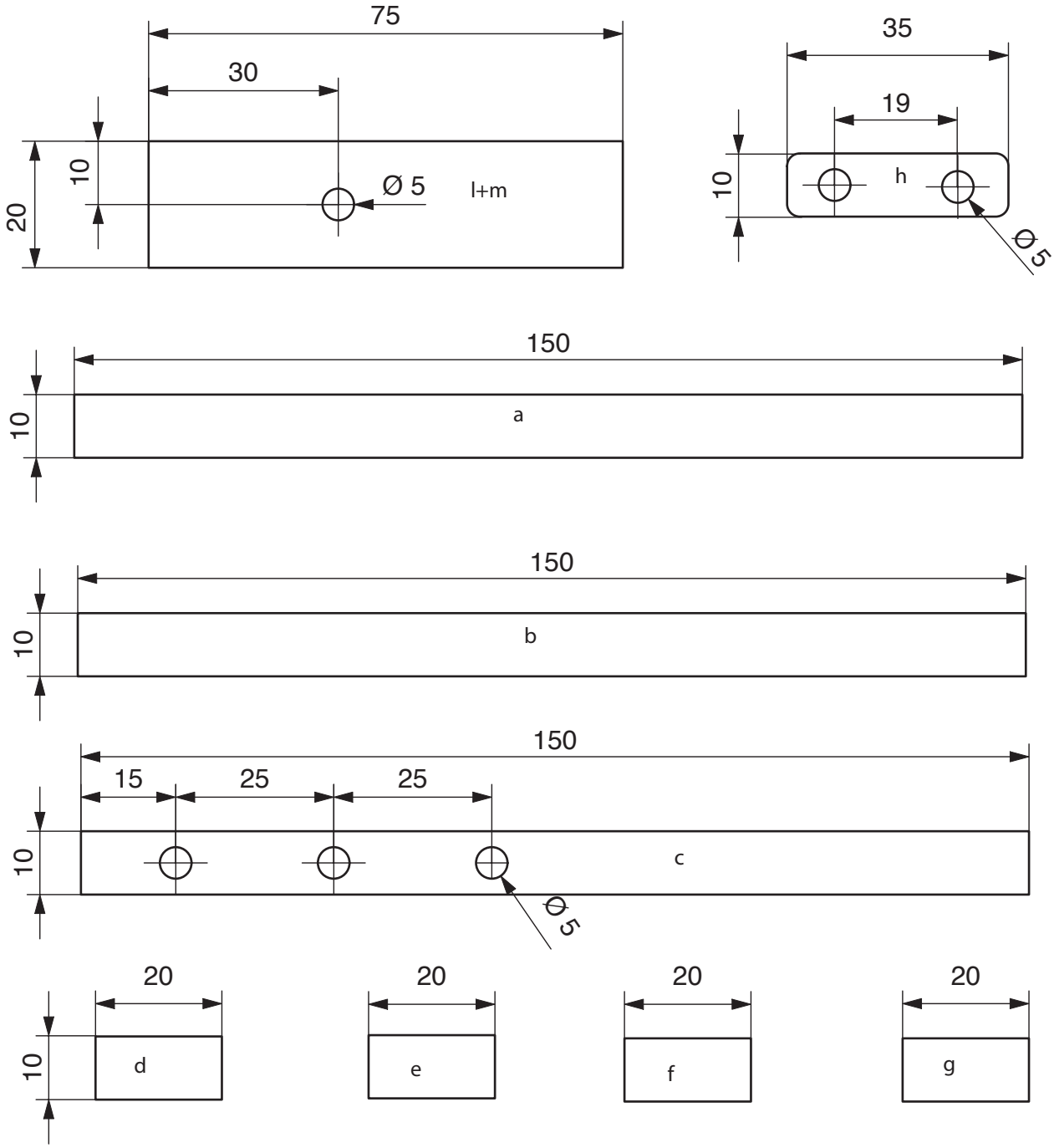


Wiring diagram

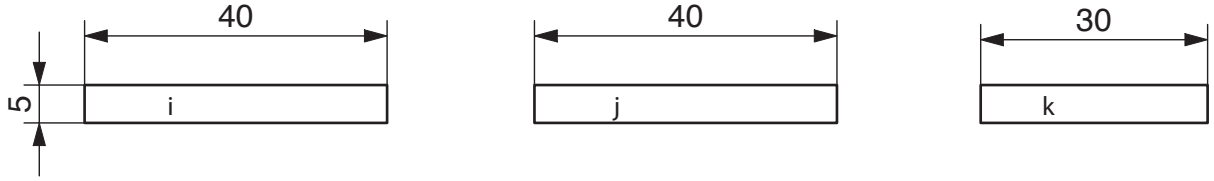


INSTRUCTIONS

Cuttin plan (Pattern) for wooden
strips 1:1



Dowel pieces



Brass band pieces Scale 1:2: