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Please return the parts to a certified provider at the end of their useful life!

MADE IN EUROPE

Nice to build!

SOL-EXPERT group

No. 76334

4 037373 763344

QR Codes

Hier geht es zur Anleitung:
https://www.sol-expert-group.de/Rund-ums-Loeten/Pfiffige-Loetbausaetze/Loetbausatz-Binaere-Uhr::1264.html?language=de

Click here for the instructions:
https://www.sol-expert-group.de/All-about-soldering/Smart-kits-for-soldering/Soldering-kit-Binary-clock::1264.html?language=en

Cliquez ici pour les instructions:
https://www.sol-expert-group.de/Autour-de-la-soudure/Kits-astucieux-pour-la-soudure/Kit-de-soudage-Horloge-binaire::1264.html?language=fr

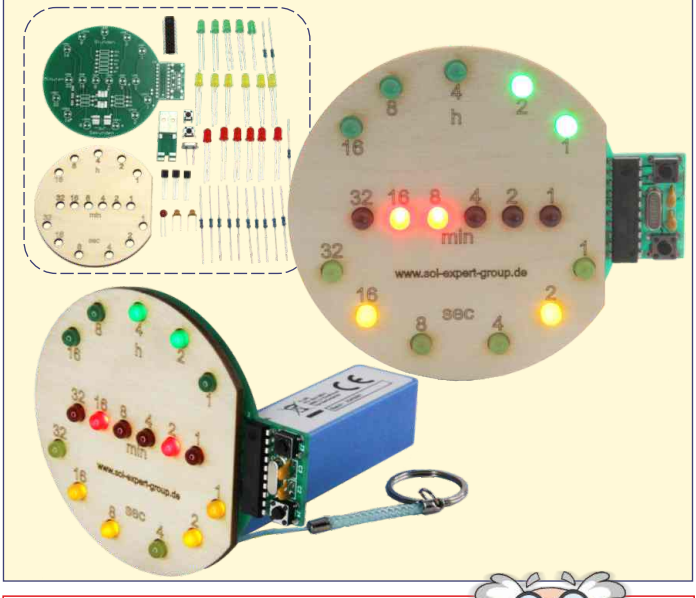
Klik hier voor de instructies:
https://www.sol-expert-group.de/Rond-solderen/Clever-kits-voor-het-solderen/Soldeerkit-Binaire-klok::1264.html?language=nl

Parts list **Check and sort out parts!**

Qty.	Circuit board	Value/Description
1	Platine	96697
5	LED 5 mm (LED7 - LED11)	Colour green
6	LED 5 mm (LED1 - LED6)	Colour red
6	LED 5 mm (LED12 - LED17)	Colour yellow
3	Resistor (R1 - R3)	1K5 Ohm
3	Resistor (R4 - R6)	4K7 Ohm
6	Resistor (R7 - R12)	330 Ohm
1	Capacitor (C4)	100 nF/10V
2	Capacitors (C2/C3)	22 pF/10V
3	Transistor (T1 - T3)	BC557B
2	Button (J3 - J4)	3301
1	Quartz (Q1)	16MHz
1	USB connector	vormontiert
1	Processor	ATTINY2313
1	Front panel	engraved

You will also need:
Soldering iron, solder, wire cutters, tweezers, power bank

Binary clock, soldering kit - powered via power bank or USB port

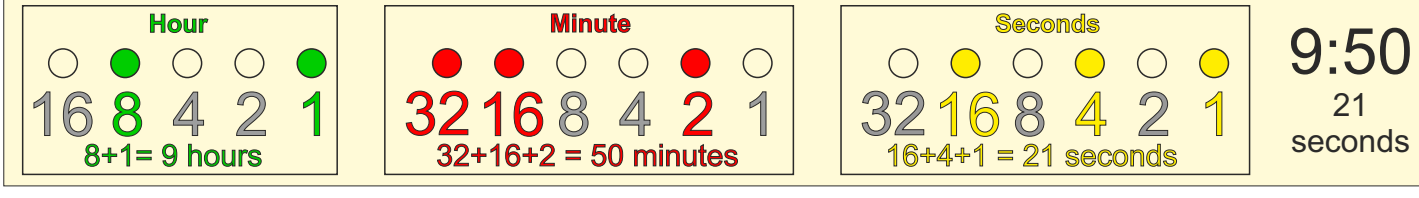


Recommendation for children and teenagers: Assembly and soldering should be supervised by an adult.

The binary clock soldering kit

The "binary clock" circuit board building kit is excellent to learn soldering skills and any novice electricians and hobby technicians. Over 40 parts are soldered onto the circuit board to build the clock, including a preprogrammed microprocessor. This enables showing the "binary" time through LEDs. One LED row is assigned to the hour/minute and one to the seconds. The actual time is set with buttons. The "binary clock" electronics building kit is powered via power bank or via USB port. This eliminates costly batteries. The included plywood front panel shows the binary values. These can then be converted to decimal values. Dimensions: 100 x 80 mm.

How to convert the binary value to a decimal number: simply add all of the values with lit LED. A practice example:



IMPORTANT SAFETY NOTES

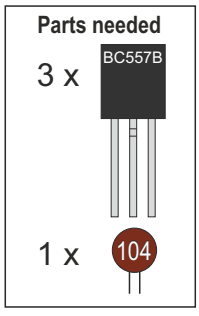
- Keep this manual for future reference! It contains important information.
- This kit is intended for USB power only. **Never connect the kit to 230 V mains voltage! Acute danger to life!**
- The soldering iron, solder and the parts being soldered become very hot. Be very careful!
- Always use a mat when soldering! This prevents parts and the circuit board from slipping.
- We recommend using a soldering iron holder to set the soldering iron down safely during use.

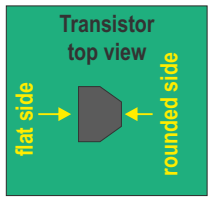
ENVIRONMENTAL NOTES

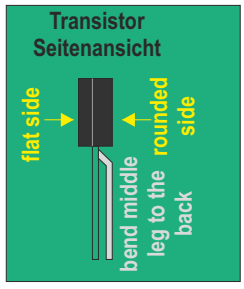
Generally: Please return the circuit board to a certified provider at the end of its useful life. These will then ensure it is disposed of in compliance with directives. This is good for the environment and an important part of actively protecting the environment.

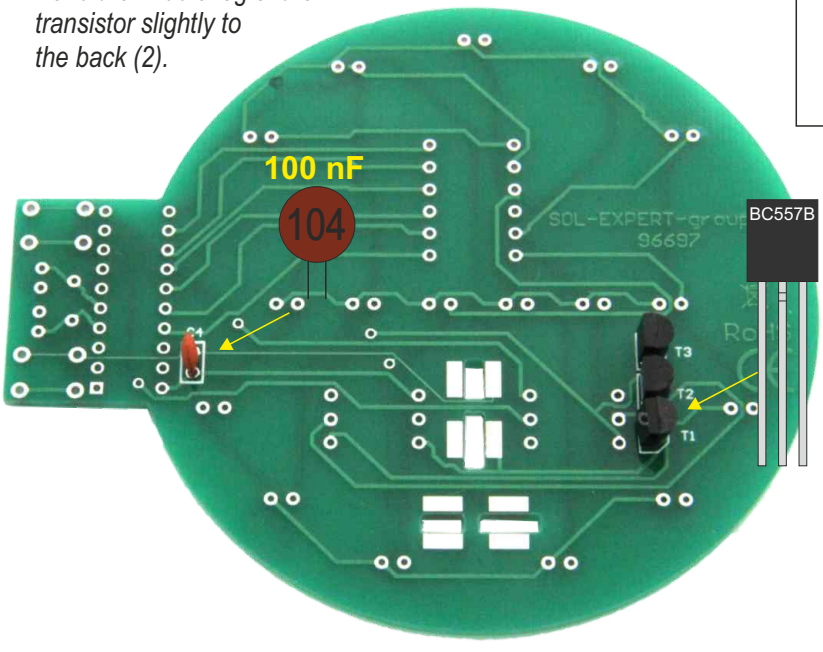
ASSEMBLY INSTRUCTIONS

A ***Board direction for soldering: 'T1' must be visible! Solder on 3 transistors and one capacitor.***
Pay attention to the direction of the transistors (1)! Bend the middle leg of the transistor slightly to the back (2).

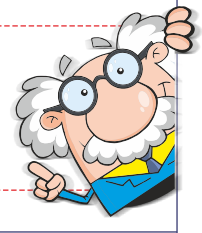




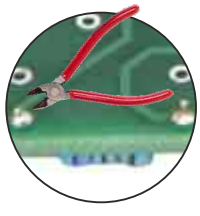




! The feet on the transistors are very close. Therefore be very careful when soldering to avoid a short-circuit between the legs.

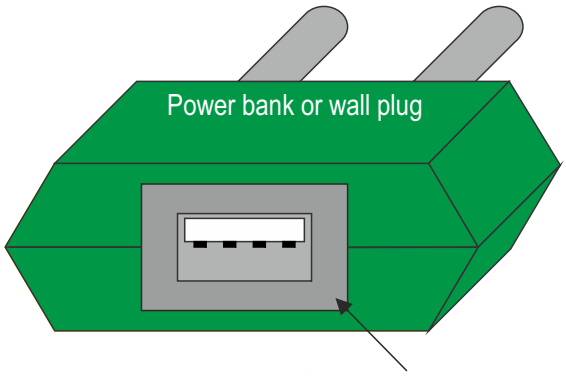


B **Trim excess wires.**



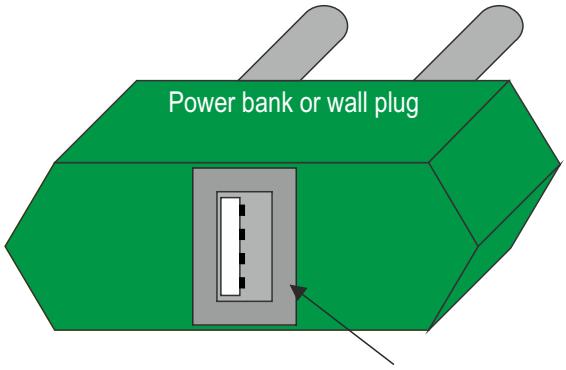
After soldering, use wire cutters to trim the excess wires at the back to approx. 2 mm.

C **Before installing the USB connector you will need to determine if the USB port on the power bank or the USB adapter you will be using to power the clock is horizontal or vertical.**



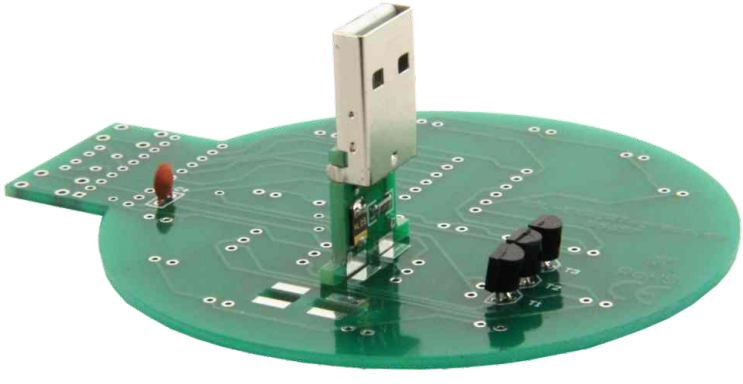
horizontal USB port

USB connector position for horizontal USB port:

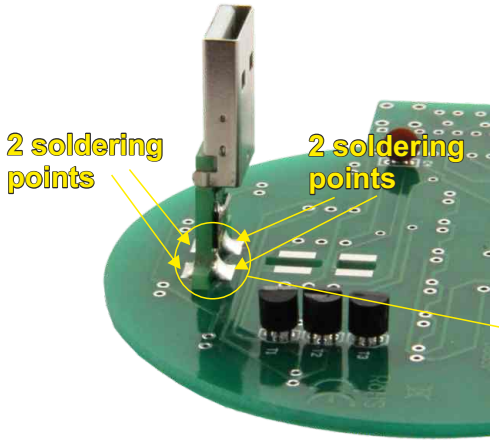


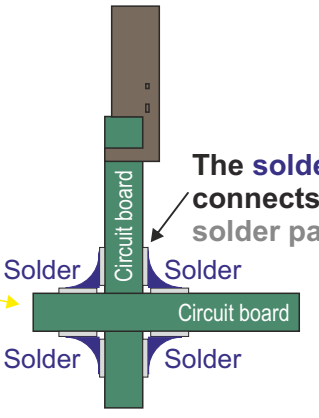
vertical USB port

USB connector position for vertical USB port:

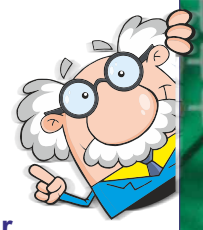


D **After choosing the correct position you can solder the USB connector in place. Be sure to push the USB connector all the way into the circuit board.** First slightly solder in one area, adjust the USB connector (if crooked), then solder on the other 3 areas. Once all 4 points have been soldered, the USB will then be firmly attached.

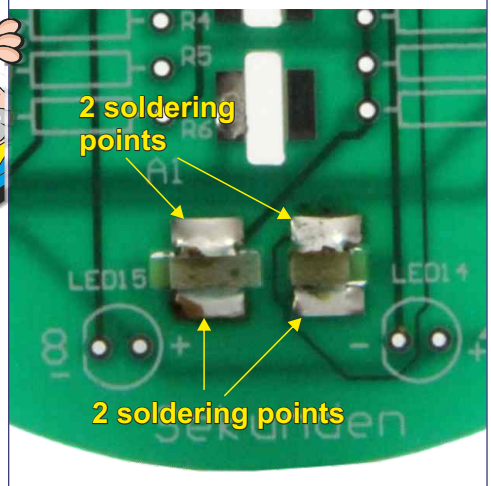




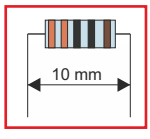
The solder connects the solder pads.



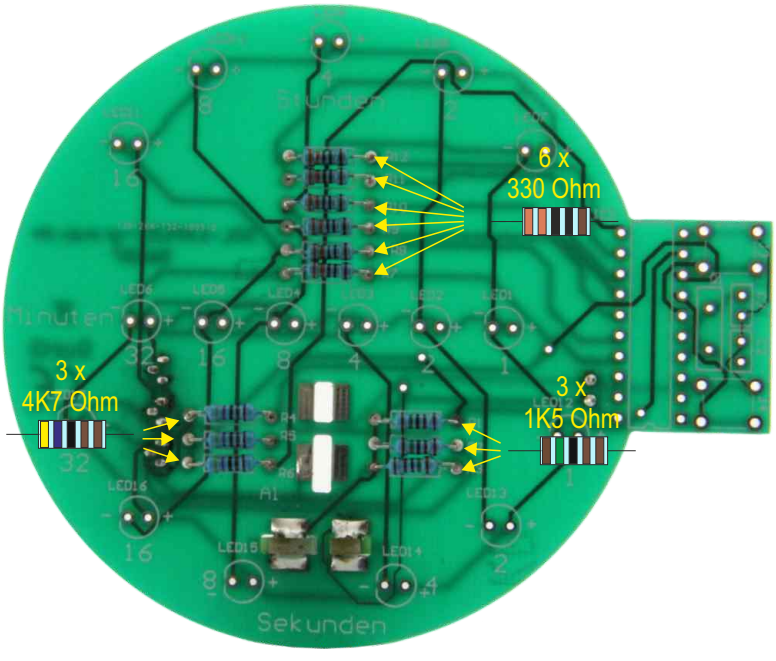
E **Turn over the circuit board and solder the other 4 points on the front.**



F **Solder 12 resistors in place, paying attention to the resistance.**
The polarity of the resistors is not important! Trim excess wires.



Bend the resistor wires so they slide easily between the lands

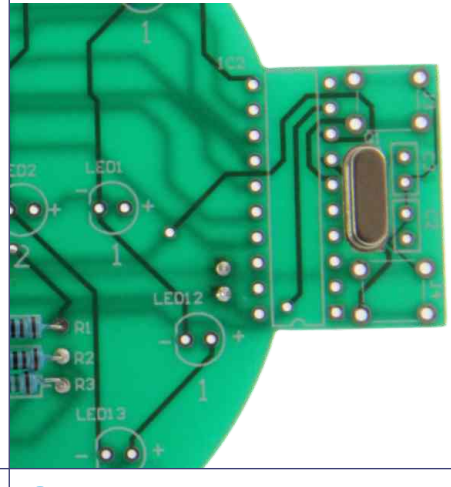


Parts needed

3 x 4K7 Ohm
3 x 1K5 Ohm
6 x 330 Ohm

G **Solder quarts in place.**
The polarity is not important.
Trim excess wires.

Parts needed



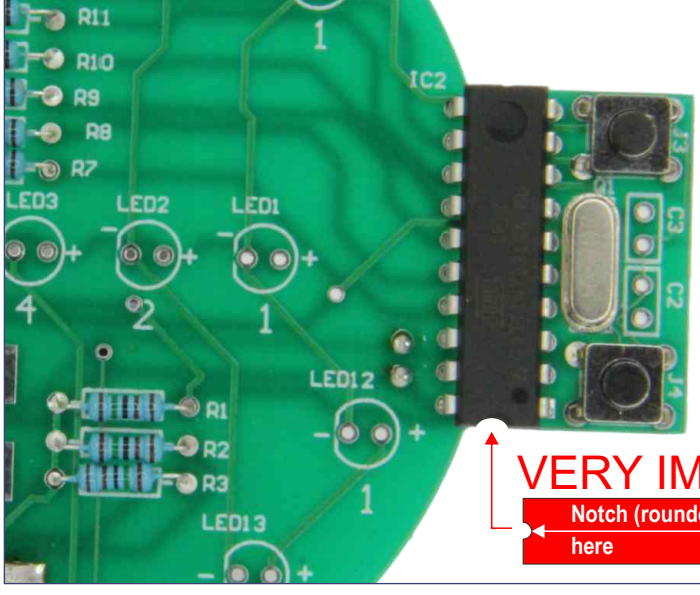
H **Solder processor and 2 buttons in place.**
The polarity is only important for the processor.
The processor has a notch (rounded area), indicating the direction. See red drawing!
Trim excess wires.

Parts needed

1 x
2 x

HINT:

You can carefully bend the processor feet slightly inward. The IC will then slide into the holes easier!



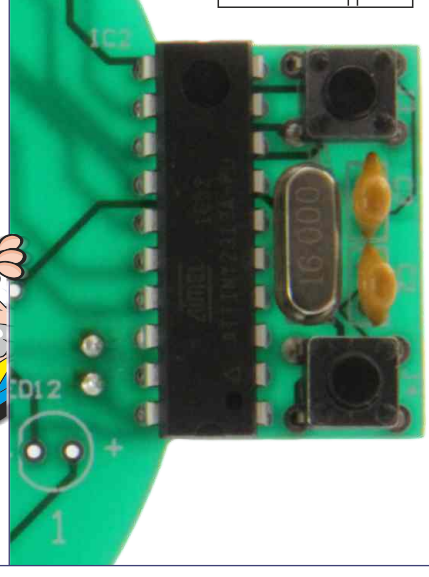
VERY IMPORTANT!

Notch (rounded) here

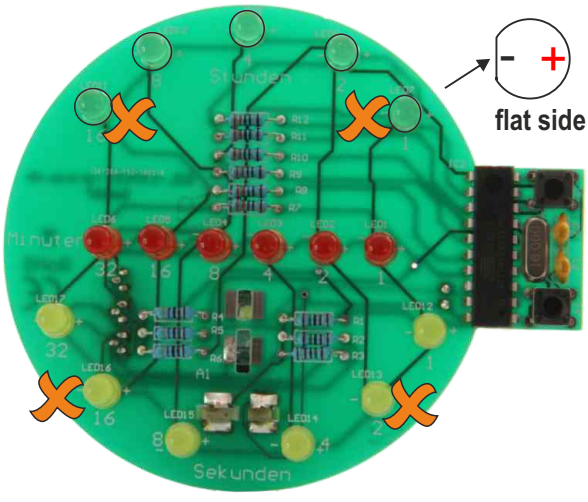
I **Solder two capacitors in place.**
The polarity is not important.
Trim excess wires.

Parts needed

2 x 22

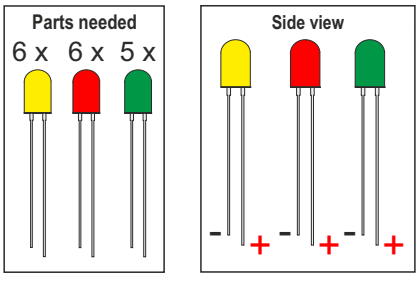


J **Solder LEDs in place.** Pay attention to the polarity - the polarity is shown on the circuit board!

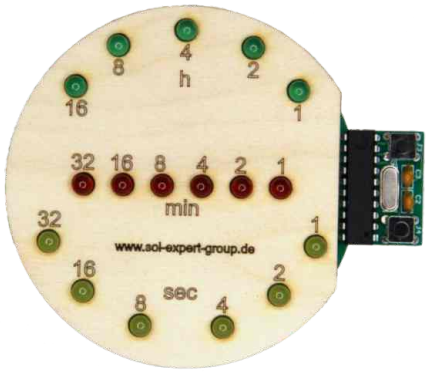


flat side = short wire

ATTENTION: the soldered on LEDs must be flat on the board. To do so, solder on the 4 marked LEDs, then the others. When soldering, make sure the legs do not short-circuit!
A short-circuit is caused by e.g. accidentally soldering together 2 wires with solder.

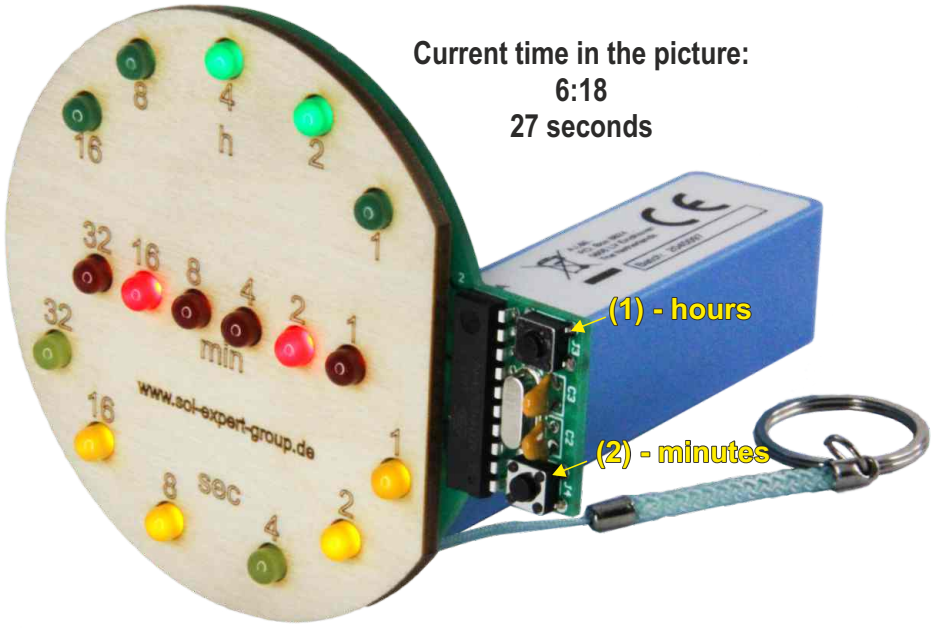


K **Slide the front panel over the LEDs, using a little pressure.**
If necessary, adjust the LEDs!



VISUAL INSPECTION:
Lean back in your chair and take a mental break. Once you feel relaxed, read through the assembly instructions again from the start, checking if you did everything as instructed. Pay particular attention to short-circuits and the resistances, etc. Take your time and once you have checked all items, plug the USB connector into a power bank or a USB port.
Some power banks have a power button which needs to be pushed for the circuit board to work.

L **Setting the current time**
The 2 buttons are used to set the current time. The top button (1) is for the hours. Use the bottom button (2) to set the minutes. Once the time is set and the buttons are not pushed again, the processor will automatically start counting the seconds. If you disconnect the circuit board from the power supply and plug it in again, you will need to set the time again.



Current time in the picture:
6:18
27 seconds

TROUBLESHOOTING:

No LEDs on:
- Check all processor soldering points for short-circuits
- Did you push the power button on the power bank to switch it on?
- Check soldering points on the quartz and the USB connector
- Check the transistors for short-circuits
- Is the power bank charged?

Specific LED does not light up:
Check the soldering points for the LED
- Is the LED installed the correct way?
-