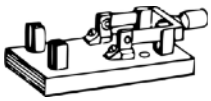
8-bit Workbench ED
Bill of Materials



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Part	Value	Remarks	Qty	Reference	Provided
Standoffs	M3	nylon stand 8 mm	**4**		
	M3	nylon stand 12 mm [1]	**2**		
	M3	nylon nut	**6**		
	M3	nylon bolt [1]	**2**		
Pin header	1 x 1 pin	male horizontal *(backside)* [2]	**2**	J4, J5	
	1 x 2 pin	jumper *(backside)* [2]	**1**	J4, J5	
Connector	USB-C	16 pin USB-C connector	1	J1	**A**
	15 cm	9 volt battery clip *(backside)* [3]	**1**	J2, J3	
Diode	1N4148	SMD diode SOD-323	1	D13	**A**
Resistor	330 Ω	SMD chip resistor 0603	9	R5-R13	**A**
	470 Ω	SMD chip resistor 0603	8	R17-R24	**A**
	1 kΩ	SMD chip resistor 0603	3	R14-R16	**A**
	5.1 kΩ	SMD chip resistor 0402	2	R1, R2	**A**
	10 kΩ	SMD chip resistor 0603	3	R3, R4, R25	**A**

A *= assembled on the PCB already*

Notes:

1) Long standoffs (together with 2 bolts and 2 nuts) are used to mount the front panel of the Binary Keyboard, *see* Assembly Instructions.

2) Used as a battery cable reel for the 9-volt battery clip. Insert the two pin headers at the back and solder them at the front side. Use the jumper as a guide and heat protection while soldering.

3) Insert the wires through the strain relief holes at the back, then solder them on the J2 and J3 pads. Check polarity: the red wire attaches to the plus (+), the black to the minus (-).

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Part	Value	Remarks	Qty	Reference	Provided
Capacitor	100 nF	SMD capacitor 0402	2	C2, C4	**A**
	10 µF	SMD capacitor 3216	2	C1, C3	**A**
Transistor	BC848	Bipolar NPN SOT-23	3	Q1-Q3	**A**
IC	PIC16F570	Programmed microcontroller SSOP-28	1	U1	**A**
	AMS1117-5.0V	1A 5.0V voltage regulator SOT-223	1	U2	**A**
Switch	ON	Push Button SMD	2	SW10, SW11	**A**
	DPDT	Small slide Switch ON-ON	**2**	SW9, SW12	
	SPDT	Big toggle switch ON-ON	**8**	SW1-SW8	
LED	red	5 mm, round [4]	**8**	D2-D9	
	green	SMD 0805	3	D10-D12	**A**
	yellow	3 mm, round [4]	**1**	D1	
Display	7-segment	SC39-11SURKWA [5]	**3**	DS1-DS3	
		Parts	**40**	*(without assembled)*	
		Types	**12**	*(without assembled)*	

***A** = assembled on the PCB already*

Notes:

4) Important: check the LED (D1-D3) polarity. The long leg is the anode (+) and the short leg the cathode (-). The short leg should go through the square pad and the long leg through the round pad. *See* Assembly Instructions.

5) Make sure the ‘dot’ of the display is at the bottom right corner.