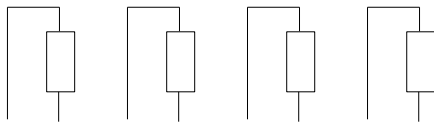# Kit „Flash Of Inspiration I"
Important Hints!

The following changes are made for more efficieny and better function.

- Contrary of the item list, there are no low current leds in this kit. Therefore the resistors R7, R8, R9, R10, R30, R38 have to be reduced from 1K5 to 820Ω.
- D1, D2, D3, D4, D8 and D11 have 3 mm diameter.
- D12-D27 are yellow leds.
- Because there were some confusions about the resistor arrays RN3, RN4, RN7 and RN8 in the past, we replaced them by single resistors with 1k each. These must be assembled according to the following scheme.

4 resistors will replace one array.

- Pay attention on lcds without backlightning. They have only 14 pins while connector K10 has 16. Look for the right position (left or right side). The pin function of K10 (from left to right):

K10 (front)	K10 (back, close to pcd border)
backlightning - bachlightning + pin 14, 13, 12, 11, ... 3, 2, 1	pin 1, 2, 3, ... 11, 12, 13, 14 backlightning + bachlightning -

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1 ooooooooooooooooo

        LCD-DOT-MATRIX-

        DISPLAY 16X2

ooooooooooooooooo 1   K10
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- If your lcd has no such order of the backlightning pins, just connect pin 1 to 14 and wiring the backlightning pins individually.
- If the lcd connector is totally different you have to wire each pin individually and fix the lcd with srews.
- The kit contains either PCF8574P or PCF8574AP . Both are identical except of the device address. PCF8574P has the address 0100 AAA RW while PCF74AP uses 0111 AAARW.
- In BASIC the I2C commands are as follows
  - PCF8574A   I2CWRITE 64, ...   (address 64 to 71)
  - PCF8574AP   I2CWRITE 112, ...   (address 112 to 119)

- The example programs must be adapted according the selected part and its device address.
- Take care: Capacitor C13 must be assembled in a different orientation.
- K2,4 and 5 are not female connectors as describt in the part list. Male connectors would be better for connecting external pcbs with flat cables.
- Instead of micro buttons S1 and S2 we add bigger ones to the kit. When assembling pay attention for the right orientation. The flat side is on the left (close to the leds). Maybe its necessary to shove the resistors R11 and R12 a little bit to the pcbs centrum.
- Connect the two pins of BU1 which are the next to the pcb border with a little piece of wire.

- BYW80 can be replaced by BYW29.
- K33 is a fixed jumper assigned to the left (in).
- The resistor arrays RN1 and RN5 are changed from 10k to 4k7.
- C10 ... C13 and C17 are all 4,7µF (instead of 1µ or 2,2µ)
- C6 is 220µF (instead of 100µ)
- D6 is also a schottky diode (both are BAT42 or BAT48)
- The screws are normally not necessary because the connector K10 it strong enough.
- Some lcds need a negative supply voltage for their contrast driver (normally those lcd with extended temperature range). This negative voltage is generated by the MAX232 and is therefore a little bit weak. For the most of such lcds it is ok, but others need more power on this pin. This disturbs the right function of the RS232 interface. In this case you should change the lcd.

The following part list shows the different parts (kit parts <-> part list of the assembly instruction).

part list according assembly instructions			part list according kit			
name	amount	value	name	amount	value	remark
BU1	1	Batt-Bu 4,2M	BU1	1	Batt-Bu 4,2M	
C1	1	10p	C1	1	10p	
C10;11;12;13	4	1µF Elko	C10;11;12;13	4	4,7µF	see text
C5;7...9;14;15	6	100n FolKo	C5;7...9;14;15	6	100n KerKo	*
C2;3	2	15p KerKo	C2;3	2	12p Kerko	*
C16	1	2,2n Kerko	C16	1	2,2n KerKo	
C17	1	2,2µF	C17	1	4,7µF	see text
C18	1	3,3n Folko	C18	1	3,3n KerKo	*
C19;20	2	220µF 63V	C19;20	2	220µF 63V	
C6	1	100µF 50V	C6	1	220µF 63V	see text
D1;2;11	3	LED red 5mm	D1;2;11	3	LED red 3mm	see text
D3	1	LED yellow 5mm	D3	1	LED yellow 3mm	see text
D4;8	2	LED green 5mm	D4;8	2	LED green 3mm	see text
D5	1	1N4003	D5	1	1N4007	*
D6	1	1N4148	D6	1	BAT42	see text
D10	1	1N4148	D10	1	1N4148	
D7	1	BAT48	D7	1	BAT42	*
D9	1	BYW80	D9	1	BYW29	see text
D12...27	16	LED red flat	D12..27	26	LED yellow flat.	see text
LD1;2	2	SL1110 7-Seg.	LD1;2	2	SL1110 7-Seg.	
LCD1	1	LCD 16x2	LCD1	1	LCD 16x2	
LS1	1	Beeper AL-60P	LS1	1	Beeper AL-60P	
L1	1	Inductor 150µ 1A	L1	1	Inductor 150µ 1A	
IC1	1	LM75 SO8	IC1	1	LM75 SO8	
IC1	1	adapter pcb	IC1	1	adapter pcb	
IC2	1	24C02 DIP	IC2	1	24C02 DIP	
IC3	1	PIC16F628DIP	IC3	1	PIC16F628DIP	
IC4	1	PCF8574AP	IC4	1	PCF8574AP	see text
IC5	1	PCF8583 DIP	IC5	1	PCF8583 DIP	
IC6	1	MAX232 DIP	IC6	1	MAX232 DIP	
IC7	1	L4960	IC7	1	L4960	
IC8;9	2	ULM 2804	IC8;9	2	ULM2804	
K1;3	2	1x8 IC-socket	K1;3	2	1x8 IC socket	
K10	1	1x14 pins small	K10	1	1x14 pins small	
K11	1	2x3 pins	K11	1	2x3 pins	
K2;4;5	3	1x10 femal connector	K2;4;5	3	1x10 male connector	see text
K26	1	1x2 pins	K26	1	1x2 pins	
K24	1	Sub-D 9 female	K24	1	Sub-D 9female	
K32	1	RJ45 8p	K32	1	RJ45 8p	
K33	1	1x3 pins	K33	1	fixed wire (in)	see text
K34;36	2	2x8 pins	K34;36	2	2x8 pins	
K44	1	1x3 pins	K44	1	1x3 pins	
P1;2	2	Poti 10K PT15LV	P1;2	2	Poti 10K PT15LV	
P1;2	2	axle	P1;2	2	axle	

part list according assembly instructions				part list according kit			
name	amount	value		name	amount	value	remark
R6	1	trimmer 10k		R6	1	trimmer 10k	
Q1	1	xtal 32,768 kHz		Q1	1	xtal 32,768kHz	
Q2	1	xtal 20 Mhz		Q2	1	xtal 20 MHz	or 16 MHz
R1;2	2	2k2		R1;2	2	2K2	
R3..5	3	1k5		R3..5	3	1k5	
R7..10;30;38	6	1k5		R7..10;30;38	6	820	see text
R11..17;27..29;35; 36	12	10k		R11..17;27..29;35; 36	12	10k	
R18	1	1k		R18	1	1k	
R19..26;32	9	330		R19..26;32	9	330	
R31	1	33		R31	-	-	not used
R33	1	4k7		R33	1	4k7	
R34	1	15k		R34	1	15k	
R37	1	680k		R37	1	680k	
RN1;5	2	9-Pin-NW 10k		RN1;5	1	9-Pin-NW 4k7	see text
RN2;6	2	9-Pin-NW 680		RN2;6	2	9-Pin-NW 680	
RN3;4;7;8	4	4R-8-Pin NW 1k		RN3;4;7;8	16	single resistors	see text
Rel 1;2	2	relais G6K-2P		Rel 1;2	2	relais G6K-2P	
S1;2	2	button		S1;2	2	button red, green	
S3..6	4	dip switch x8		S3..6	4	dip switch x8	
T4-T6	3	BC547B		T4-T6	3	BC547B	
Sockel	6	16pol. socket		Sockel	6	16pol. socket.	
Sockel	3	18pol socket		Sockel	3	18pol. socket	
Sockel	3	8pol. socket		Sockel	3	8pol. socket	
Tastaturmatrix	1	key matrix3x4		Tastaturmatrix	1	key matrix 3x4	
Steckbrücken	19	Jumper		Steckbrücken	19	Jumper	K33 s. Text
mech. Kleinteile	4	nut M3x2,5		mech. Kleinteile	4	nut M3x2,5	
mech. Kleinteile	4	screw 2,5x10		mech. Kleinteile	4	screw 2,5x10	
mech. Kleinteile	4	distance screw		mech. Kleinteile	4	distnce screw	see text
	20	single connectors			20	single connectors	

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