

MidiBox CV all-in-one PCB by Jan Speck

1 Security warning

Attention! Working with electrical power is seriously dangerous!
I don't take liability for damages resulting from the use of this instructions!

Never work on a PCB which is still connected with power!

2 Bill of Materials

Diodes

Description	Quantity	Part Number
1N 4148	1	D5
1N5817	2	D1, D2

Capacitors

Description	Quantity	Part Number
KERKO 33P	2	C13 C14
MKS-2-5 10N	1	C16
RAD 105 10/63	5	C5, C6, C9, C17, C19
Z5U-5 100N	8	C10, C11, C12, C15, C18, C20

ICs

Description	Quantity	Part Number
24LC256	1	IC12
6N138	1	IC6
74HC 00	1	IC7
74HC 165	1	IC5
LM336_2,5V	1	IC1
MAX525	2	IC8, IC10
TL 074 DIP	2	IC9, IC11
PIC18F452I/P	1	IC4
μ A 7805	1	IC3

IC sockets

Description	Quantity	Part Number
GS 8	2	(IC6, IC12)
GS 14	3	(IC7, IC9, IC11)
GS 16	1	(IC5)
GS 20	2	(IC8, IC10)
GS 40	1	(IC4)

Transistors

Description	Quantity	Part Number
BC 337-25	1	T1

Trimmers

Description	Quantity	Part Number
64W-500	8	RP1, RP2, RP3, RP4, RP5, RP6, RP7, RP8
PT10LH	2	P1, P2

Resistors

Description	Quantity	Part Number
METALL 100	1	R1
METALL 220	5	R11, R12, R13, R14, R15
METALL 1,00K	3	R2, R4, R5
METALL 1,20K	1	R9
METALL 2,20K	1	R6
METALL 2,20K (Q2 = MAX6007) METALL 2,70K (Q2 = LM385-2,5)	8	RY1, RY2, RY3, RY4, RY5, RY6, RY7, RY8
METALL 5,60K	1	R10
METALL 10,0K	8	R3, R7, R8, RX1, RX2, RX3, RX4, RX5, RX6, RX7, RX8
SIL 6-5 10K	1	RN2
SIL 5-4 10K	1	RN1

Miscellaneous

Description	Quantity	Part Number
10,0000-HC49U-S	1	Q1
Ferrite Beads	2	L1, L2
MAX6007B (SMD) oder LM385-2,5	1	Q2

Notes:

- Use precision trimmer with a screw which is accessible from the top for the 500 Ohm trimmers, e.g. from Spectrol or Bourns.
- Q2 can be loaded either with a MAX6007B (SMD) or a LM385-2,5 (leaded). Never ever load both!

2.1 Jumper

J3: Set it if you are not using a separate 5V PSU.

3 Known Problems

3.1 PCB version 2.07

1. The orientation of Q2 when loaded with a LM385-2,5 is wrong. Turn it 180 degrees to correct it. This is fixed in PCB version 2.08.
2. The orientation of the resistor network RN1 is not on the print: Pin 1 points away from the PIC.

4 Involved persons

PCB design: Jan Speck

Daddy of the MidiBox: Thorsten Klose

Documentation/Groupbuy: Joachim Backhaus

Correction: rvlt