

Initial operation

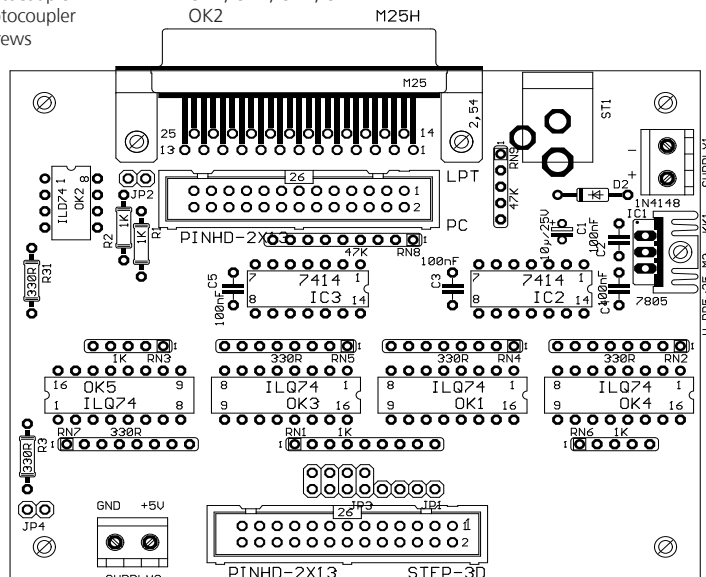
Before the initial operation do a visual test of all the soldering joints and the components. Make sure all ICs have been inserted in the proper orientation. Check for short cuts on the parallel port connector (LPT). On Interface-Relay board, change transistor base resistors from 4k7 to 1k, if used.

Good luck!

Thorsten Ostermann

Part list

No.	Value	Part	Name
2	330R	Resistor	R3, R31
2	1K	Resistor	R1, R2
4	330R	SIL8	RN2, RN4, RN5, RN7
2	1K	SIL5	RN3, RN6
1	47K	SIL5	RN9
1	1K	SIL9	RN1
1	47K	SIL9	RN8
1	1N4148	Diode	D1
4	100nF	Cer. capacitor	C2, C3, C4, C5
1	10µ/25V	Electrolytic cap.	C1
1	7805	v-reg	IC1
1	DIL8	IC socket	
2	DIL14	IC socket	
4	DIL16	IC socket	
2	KLEMM2	cage clamp	SUPPLY, SUPPLY2
1	L-BUCHSE	L-plug	ST1
1	M25H	SubD-25m print	LPT
2	PINHD-2X13	Wanne 26p	PC, STEP-3D
2	PINHD-1X2	Pinhead	JP2, JP4
1	V PR5/25-M3	IC gheatsink	KK1
2	74HCT14	74HCTxx	IC2, IC3
4	ILQ74	Optocoupler	OK1, OK3, OK4, OK5
1	ILD74	Optocoupler	OK2
2	M3*6	Screws	



Assembly Information

Optocoupler board for PC printer port

Rev. 1.2 (last updated 25.09.2005)

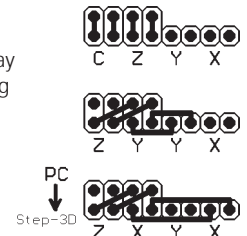
Exclusion of Liability, EMC (electromagnetic compatibility)

Although all parts of the circuitry have been thoroughly tested NC-Step does not give any warranty or other assurance as to the operation or functionality of the circuitry or the documentation. NC-Step especially takes no responsibility for any damages caused by reproduction, reverse engineering or initial operation of the here described circuits.

The optocoupler board is an OEM product made for use in industry, electronic trade and other EMC experienced sectors. According to EMVG §5, section 5 this product does not require CE qualification. Cabling, used amplifiers, power supply and the surrounding environment are factors that influence the EMC properties of a device. A device using one or more optocoupler boards must of course be evaluated according to corresponding directives, when CE conformity must be documented. During development all possible means were used to conform to EMC regulations.

Hints for trouble shooting, support

Please read the documentation carefully at first and check the circuitry. You may also the NC-Step homepage www.nc-step.de in order to look for hints and bug fixes. If these hints and the additional help in the forum on www.nc-step.de don't answer all your questions, contact me for further help, by email. Please provide a detailed description of the problem and your configuration. (Power supply, used Software a.s.o.) -> E-Mail: Ostermann@NC-Step.de



Fitting with components

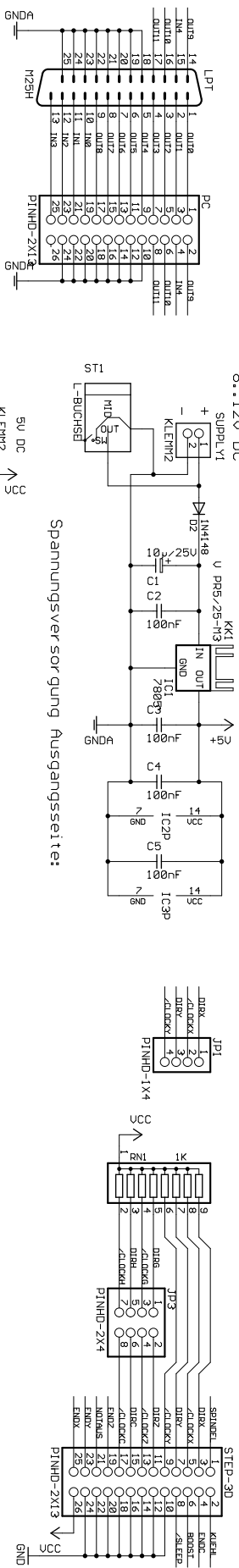
When fitting the board with components, make sure to follow the general rules:

- Start with the small components (resistors, diodes, capacitors, ...)
- Be careful to assemble with correct polarity (diodes, electrolytic caps, resistor arrays, ...)
- All ICs should be set on sockets for safety reasons.
- The optocoupler are ILQ74 and ILQ74. CNY 74 can be used as a replacement, but the max. frequency will be lower.
- J1 and J3 are a connector field to distribute clock and direction signals for different axes configurations. See picture above for details. First one is standard 3/4 axes config. The 2nd one is for gantry on Y-axis, 3rd for gantry on X-axis, both requiring additional 4th axis board. Use isolated wires to make the connections as shown above.

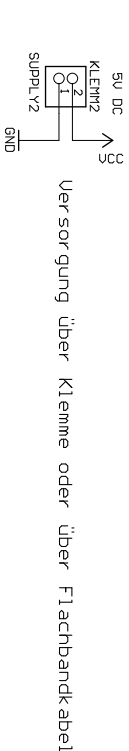
External connections

- Use a standard 1:1 wired 25 pin D-SUB cable for connection to the printer port.
- Pinhead „3D-Step“ is used to connect the 3D-Step or the interface board. If the optocoupler board is used with other circuits, 5V DC must be supplied at „Supply 2“.
- On the PC side, a power supply with 11..17V AC or 8..12V DC, 25mA is necessary. Use a small wall plug power supply or 12V DC from PC's power supply. Do NOT use the stepper motor power supply, because it is not galvanic isolated to the power electronics. If you want to use 5V DC power supply on PC side, short the Diode D1 and IC1 (outer drills).
- JP2 and JP4 can be used to access the unused 16th optocoupler

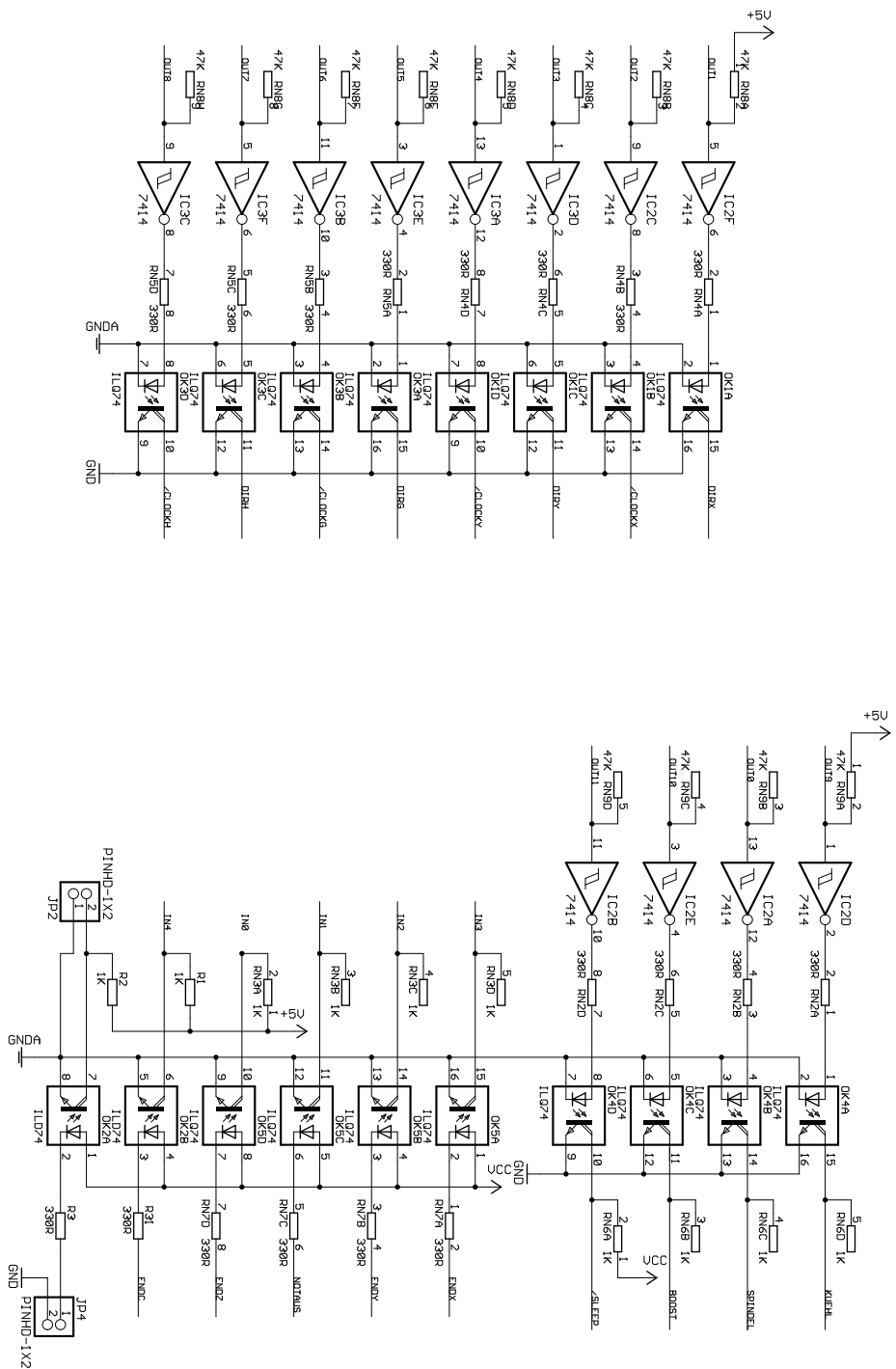
11..12V AC Spannungsvorsorgung PC-seitig:



Spannungsvorsorgung Ausgangsseite:



Versorgung über Klemme oder über Flachbandkabel



PP-Optokoppler

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