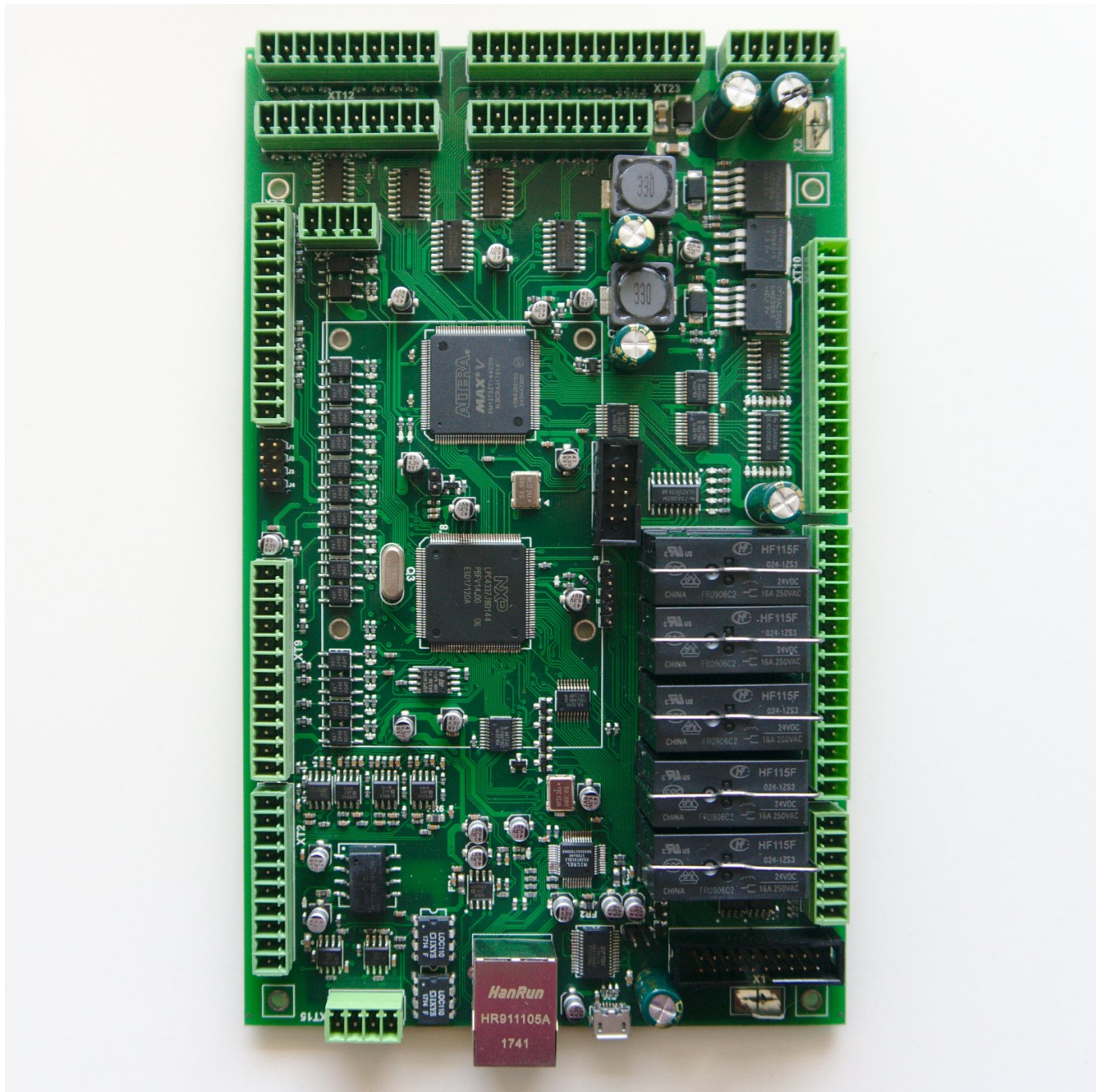


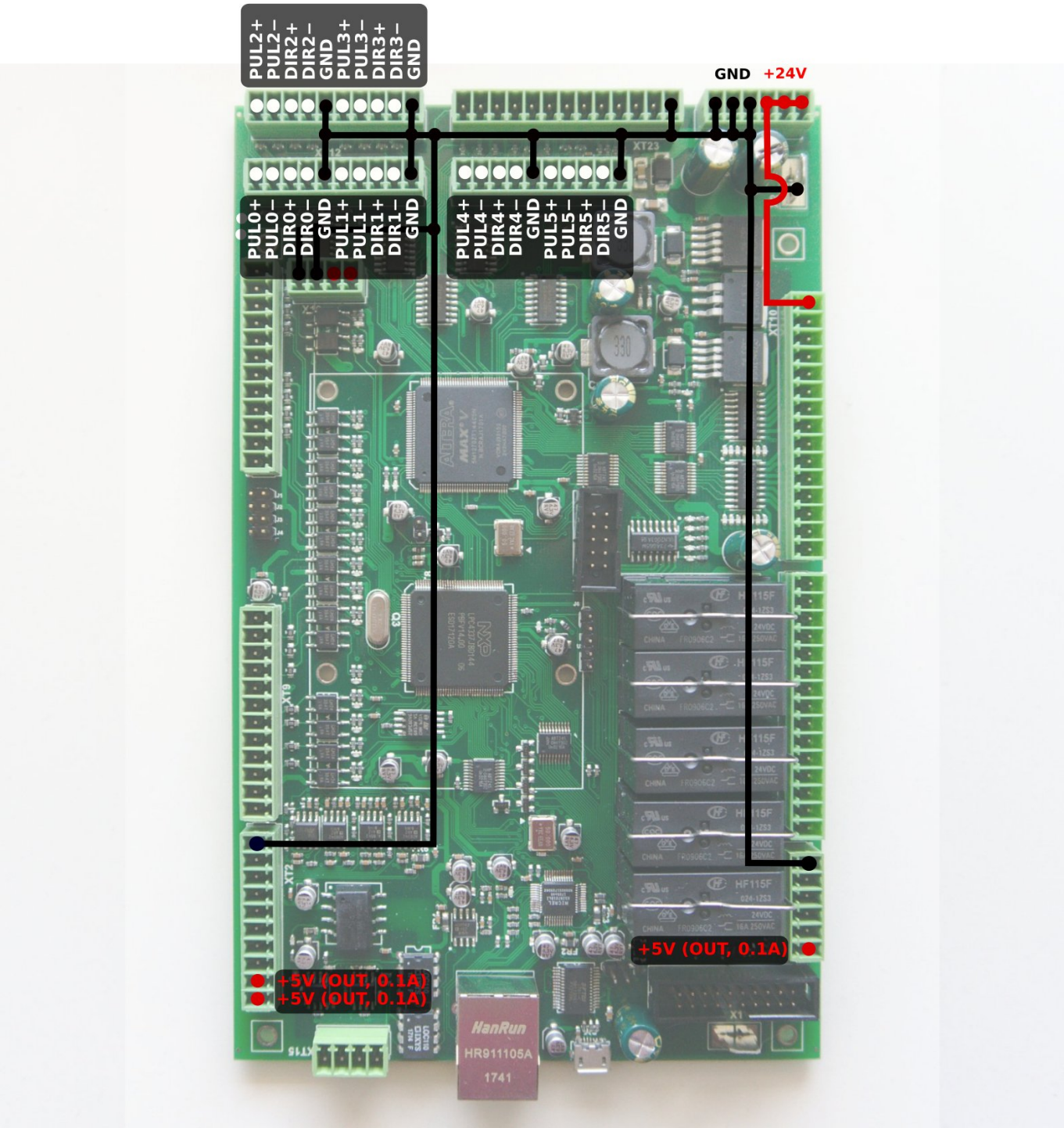
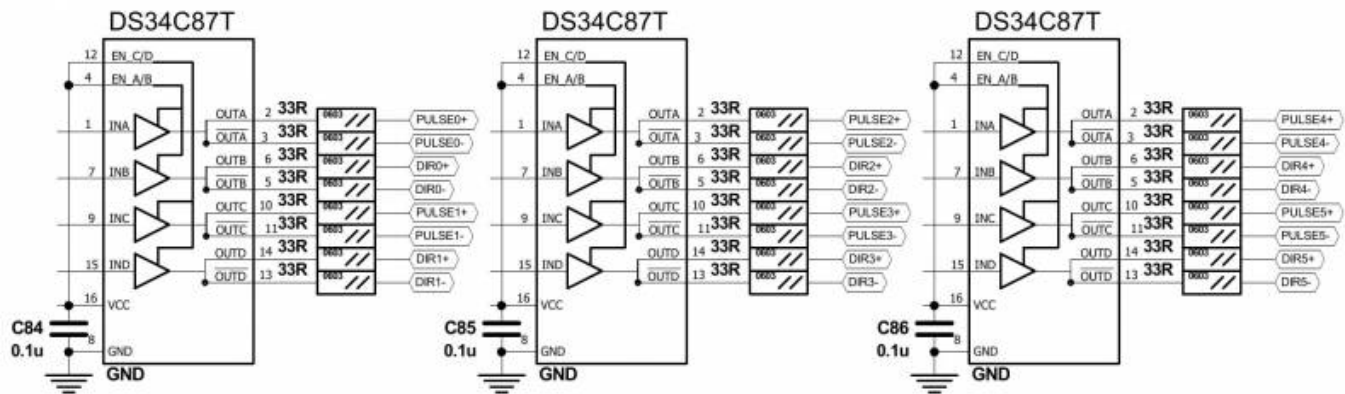
myCNC-ET7 CNC controller

ET7 top view



Power supply connection

myCNC-ET7 control board uses 24VDC . The board contains 4 pins for connection +24V (joined internally) and a number of GND pins for convenient connection of external devices. Power Supply 24V DC and +24V and GND pins are shown on a picture below.



ET7 Output pins

ET7 board contains 19 output pins-

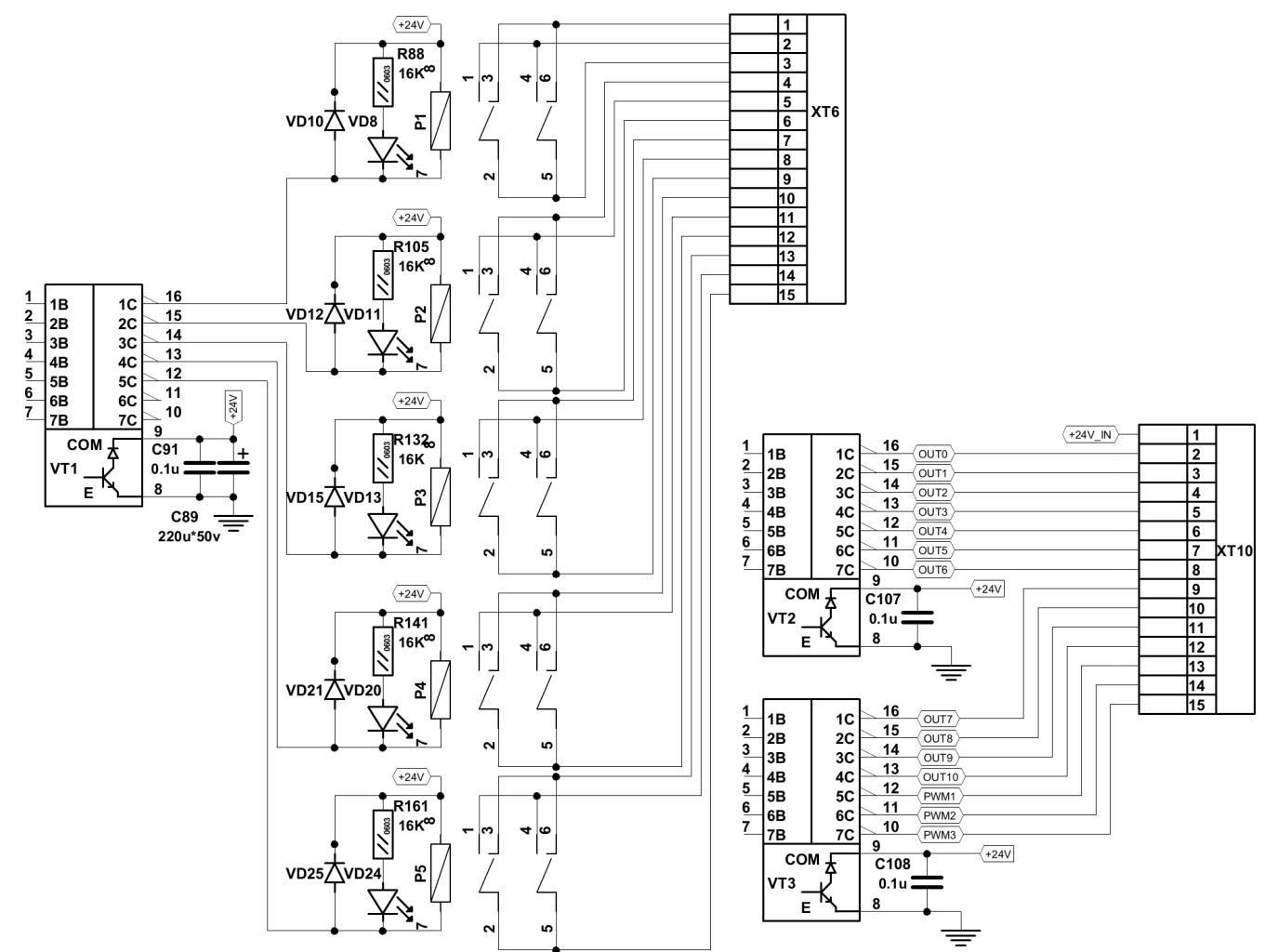
- 5 relay outputs (OUT#11 ... OUT#15)
- 11 open collector outputs (OUT#0 ... OUT#10)
- 3 PWM outputs (PWM#1, PWM#2, PWM#3)

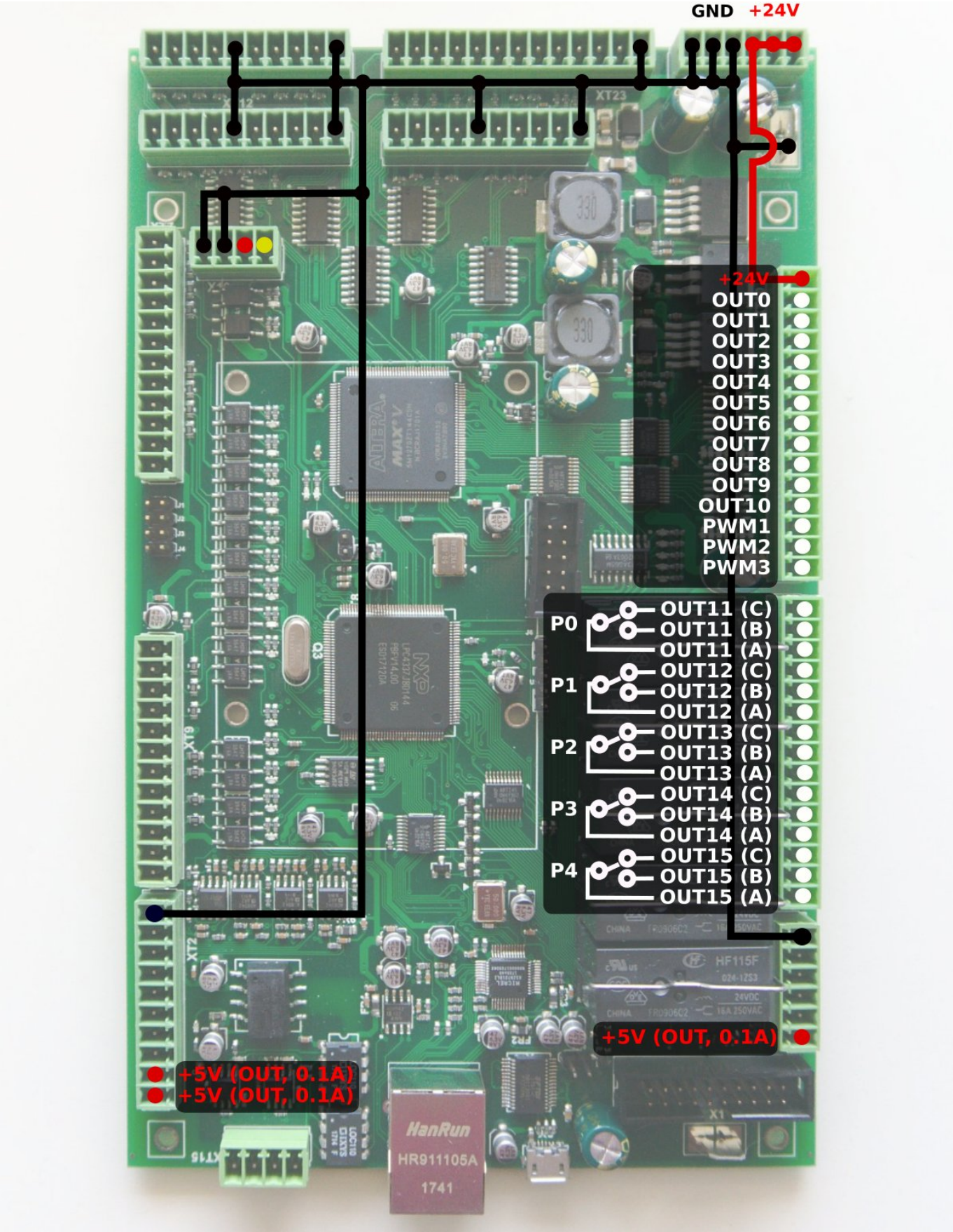
WARNING: ET7 board rev.1,2 has Output pin names printed on Bottom side of the board.

These names are NOT correct and differ from actual output addresses.
Please check the table below to find out the actual output address

SILK print	Actual Output Pin Address
OUT0	OUT0
OUT1	OUT1
OUT2	OUT2
OUT3	OUT3
OUT4	OUT4
OUT5	OUT5
OUT6	OUT6
OUT7	OUT7
OUT8	OUT8
OUT9	OUT9
OUT10	OUT10
OUT11	PWM1
OUT12	PWM2
OUT13	PWM3
P0A	OUT11 (A)
P0B	OUT11 (B)
P0C	OUT11 (C)
P1A	OUT12 (A)
P1B	OUT12 (B)
P1C	OUT12 (C)
P2A	OUT13 (A)
P2B	OUT13 (B)
P2C	OUT13 (C)
P3A	OUT14 (A)
P3B	OUT14 (B)
P31	OUT14 (C)
P4A	OUT15 (A)
P4B	OUT15 (B)
P41	OUT15(C)

Schematic for ET7 inputs & outputs is shown below



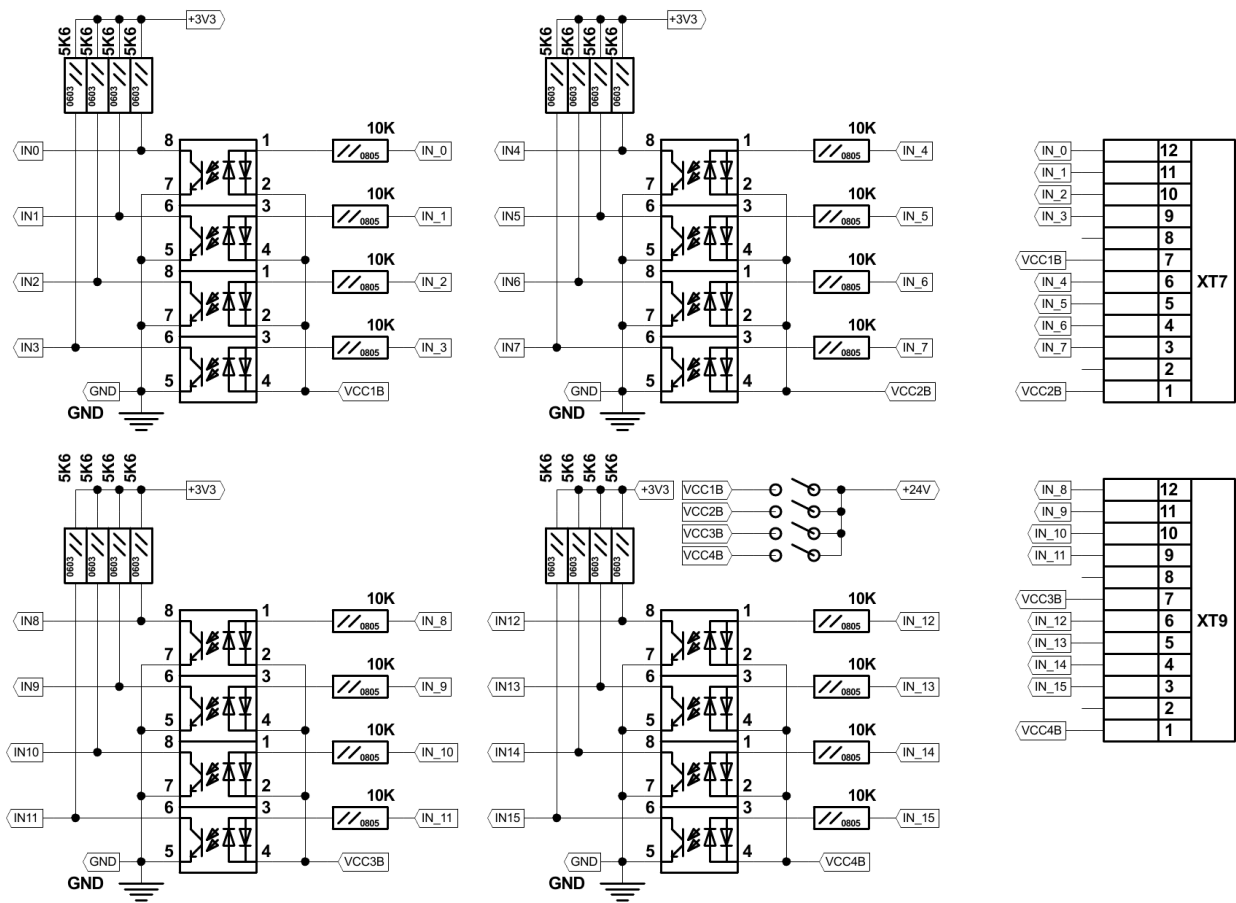


Galvanic isolated inputs

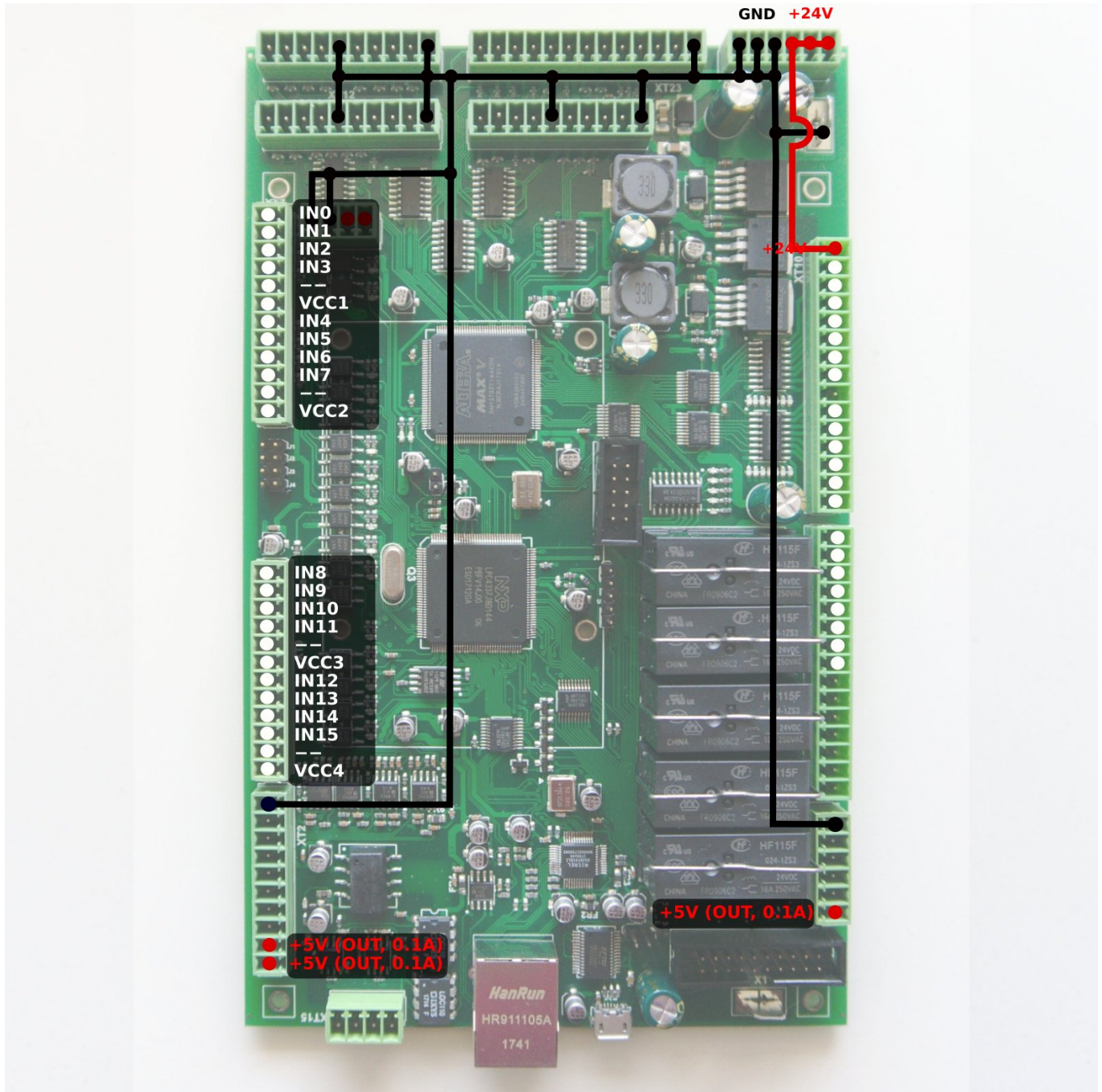
ET7 control board has 16 galvanic isolated binary inputs, 4 groups of 4 inputs each. Each group has separate power supply pins so inputs can be powered from different power sources. Using PNP and

NPN sensors simultaneously is possible too.

Galvanic isolated inputs schematic is shown below



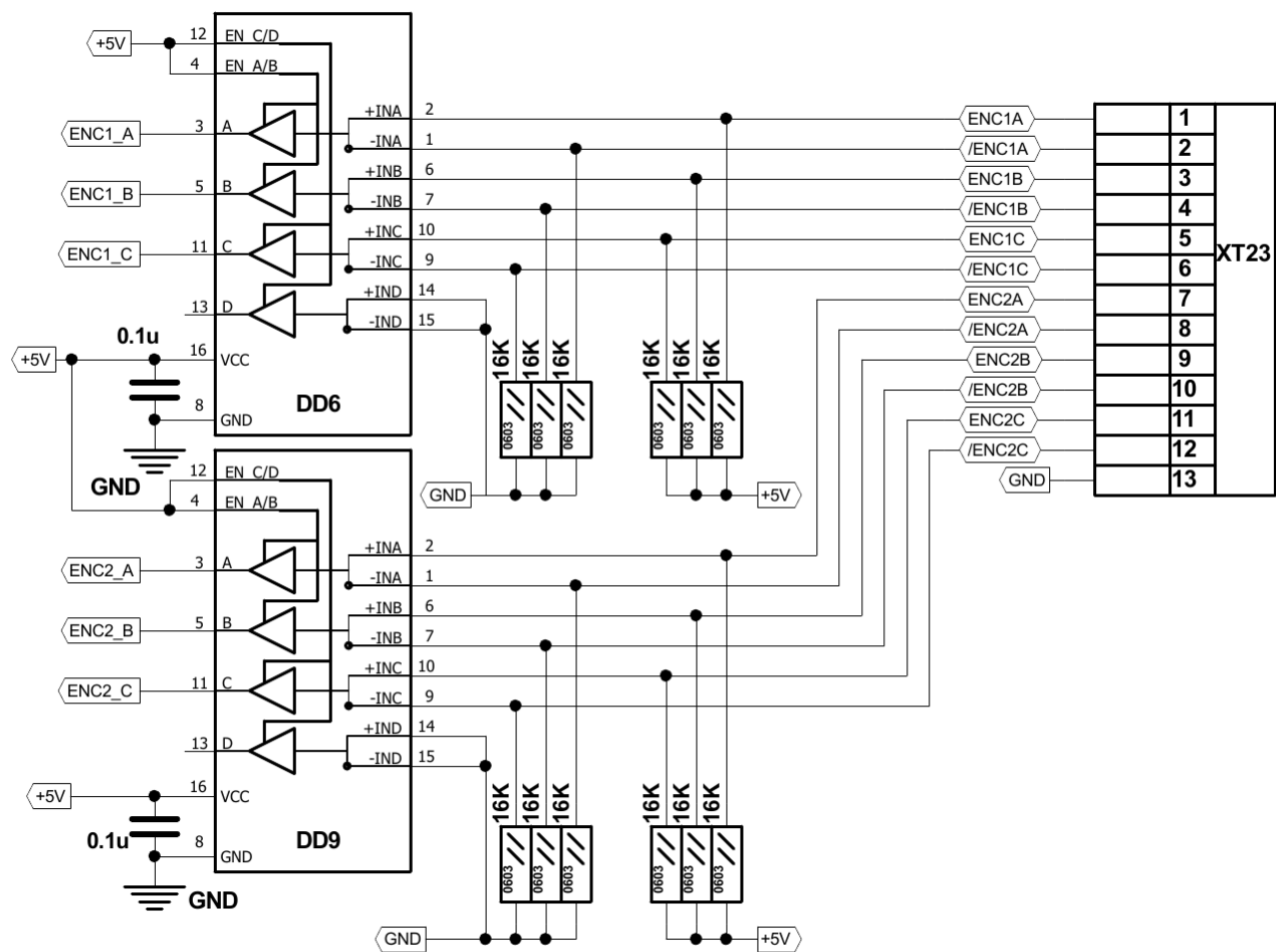
Connectors pinout for binary inputs is shown on a picture



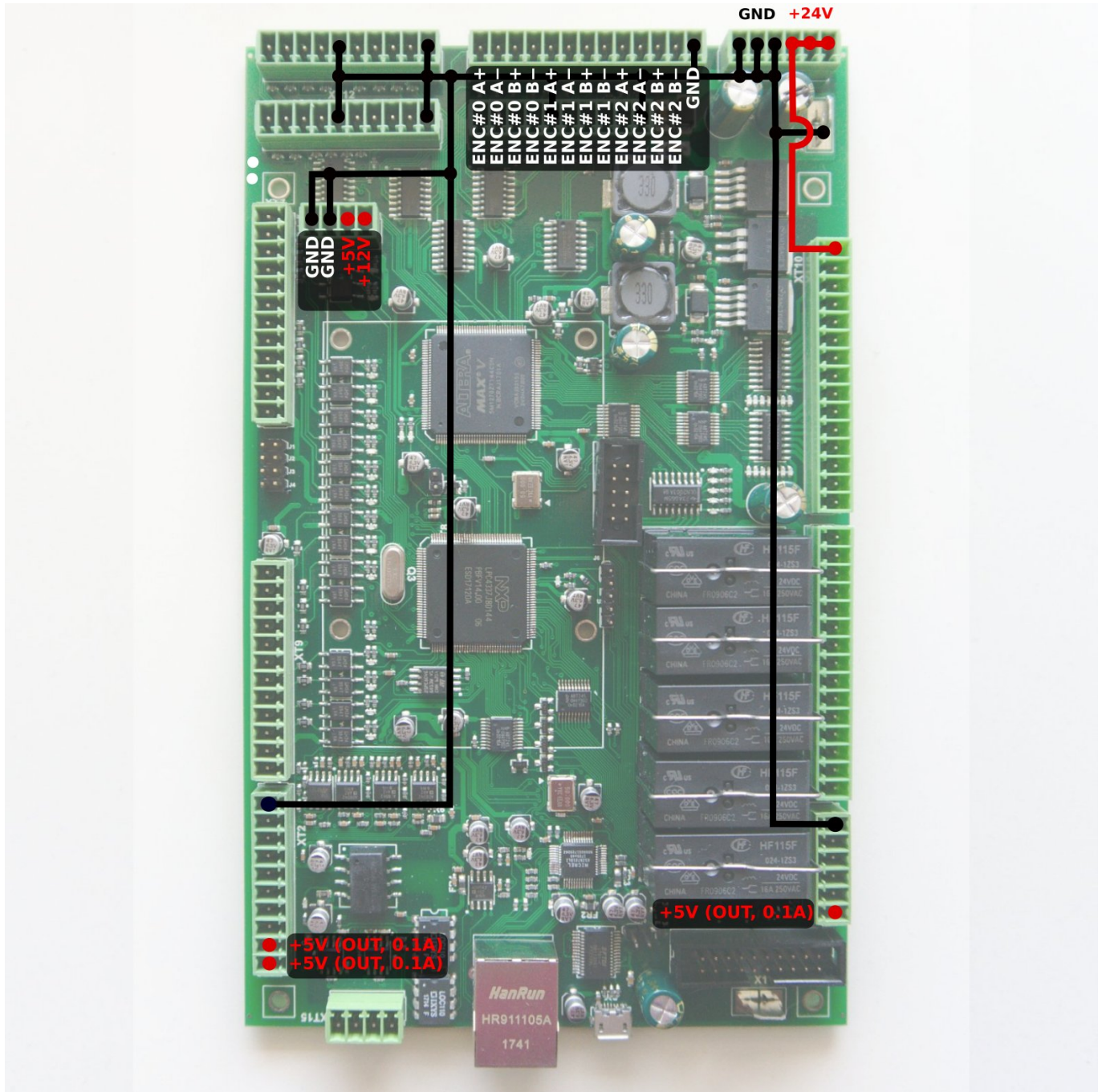
Encoder Inputs

ET7 control board has 3 AB incremental encoder inputs with hardware implemented decoding. Max pulse frequency of encoder pulses is 3MHz. 6 encoder input signals are mapped to General purpose binary input addresses 20...25 and can be used as normal binary inputs. Encoder inputs are line driver differential signal compatible.

Encoder inputs schematic is shown below



Encoder inputs connector pinout is shown on a picture

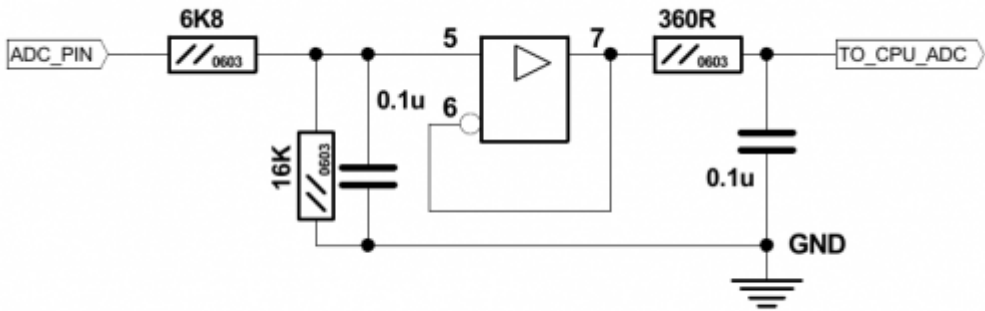


ADC Inputs

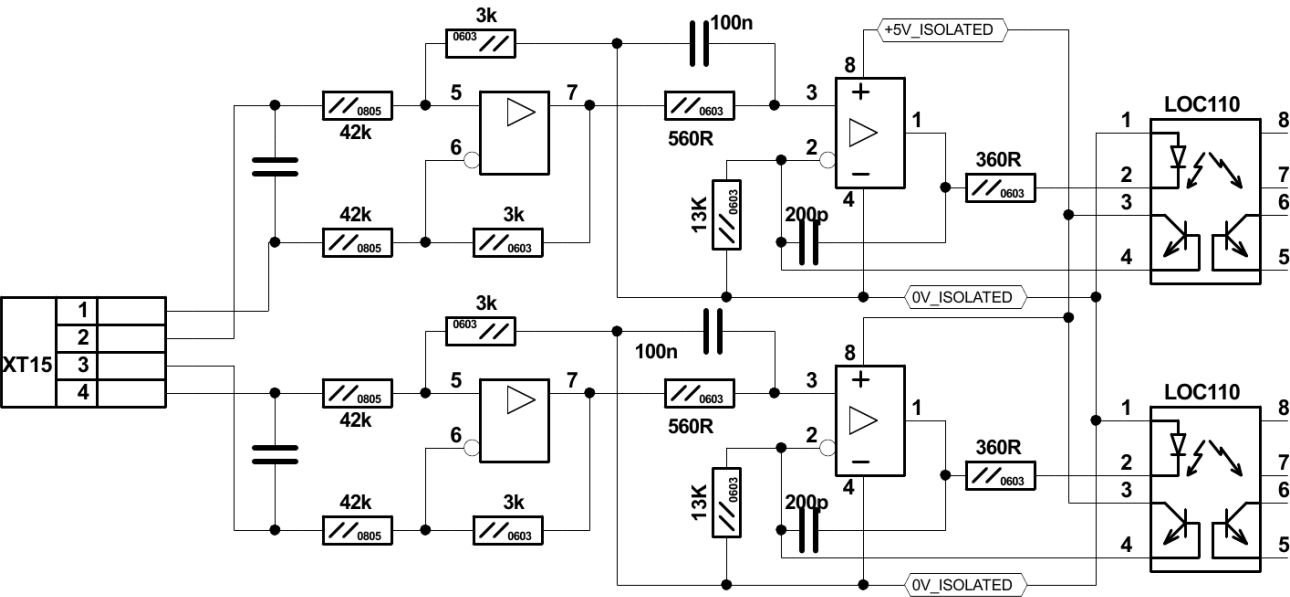
myCNC-ET7 controller has 8 ADC inputs.

- 6 ADC inputs 0-5V range
- 2 ADC inputs with galvanic isolation for save and convenient connection of Arc Voltage signal from Power station. Galvanic isolated ADC inputs are 0..10V, so High Voltage Arc signal **CANNOT** be connected directly to ADC inputs, **voltage divider is NEEDED**.

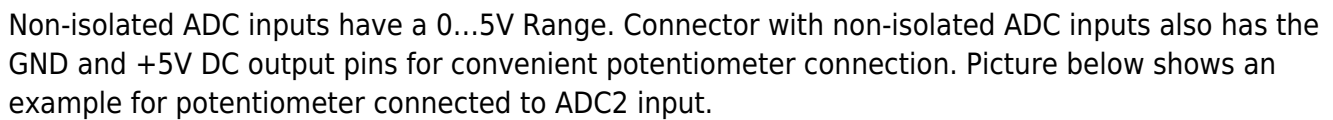
The 0-5 V ADC inputs schematic is shown below:

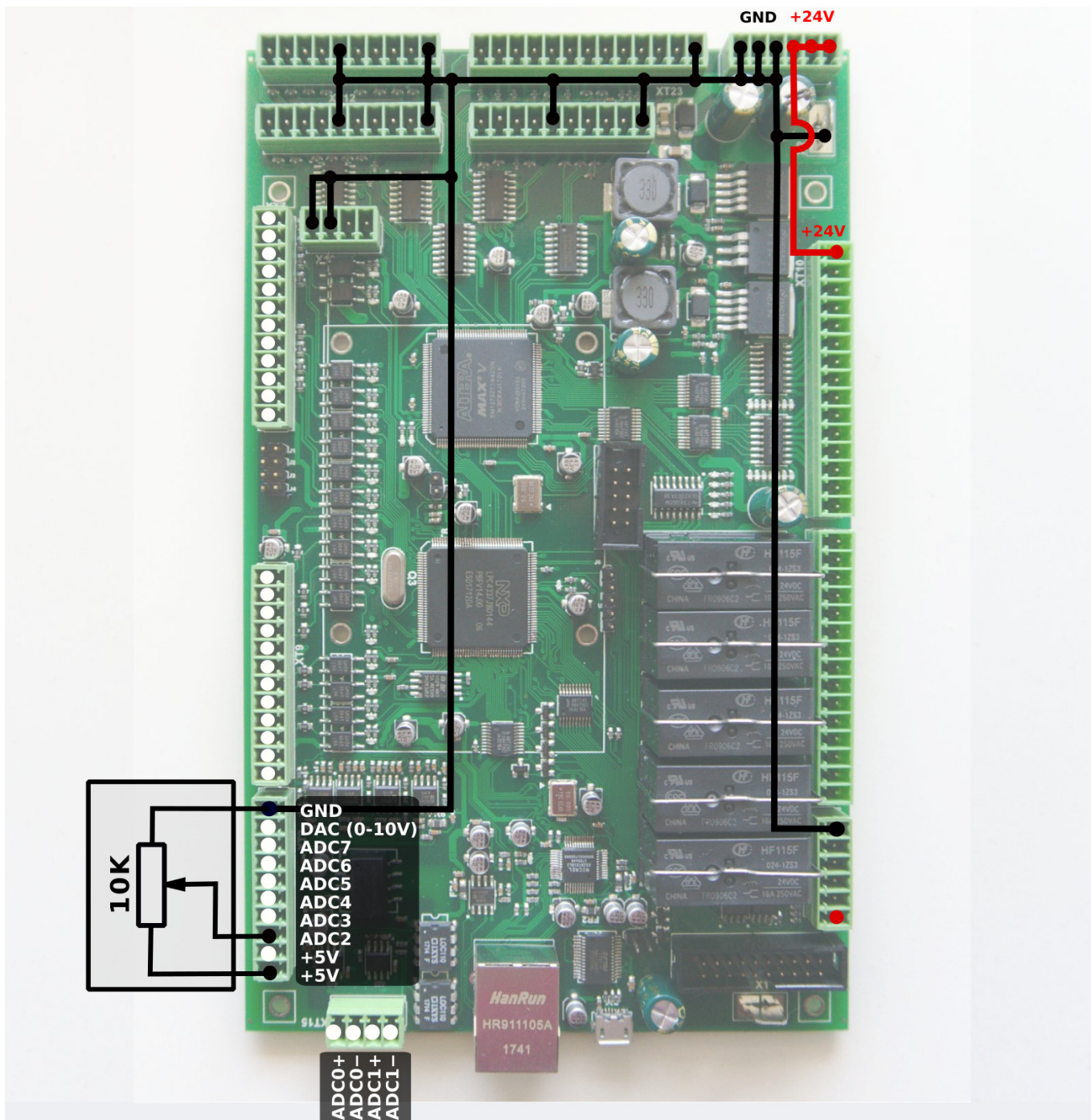


Isolated ADC inputs schematic is shown below:



Connectors pinout for ADC inputs is shown below



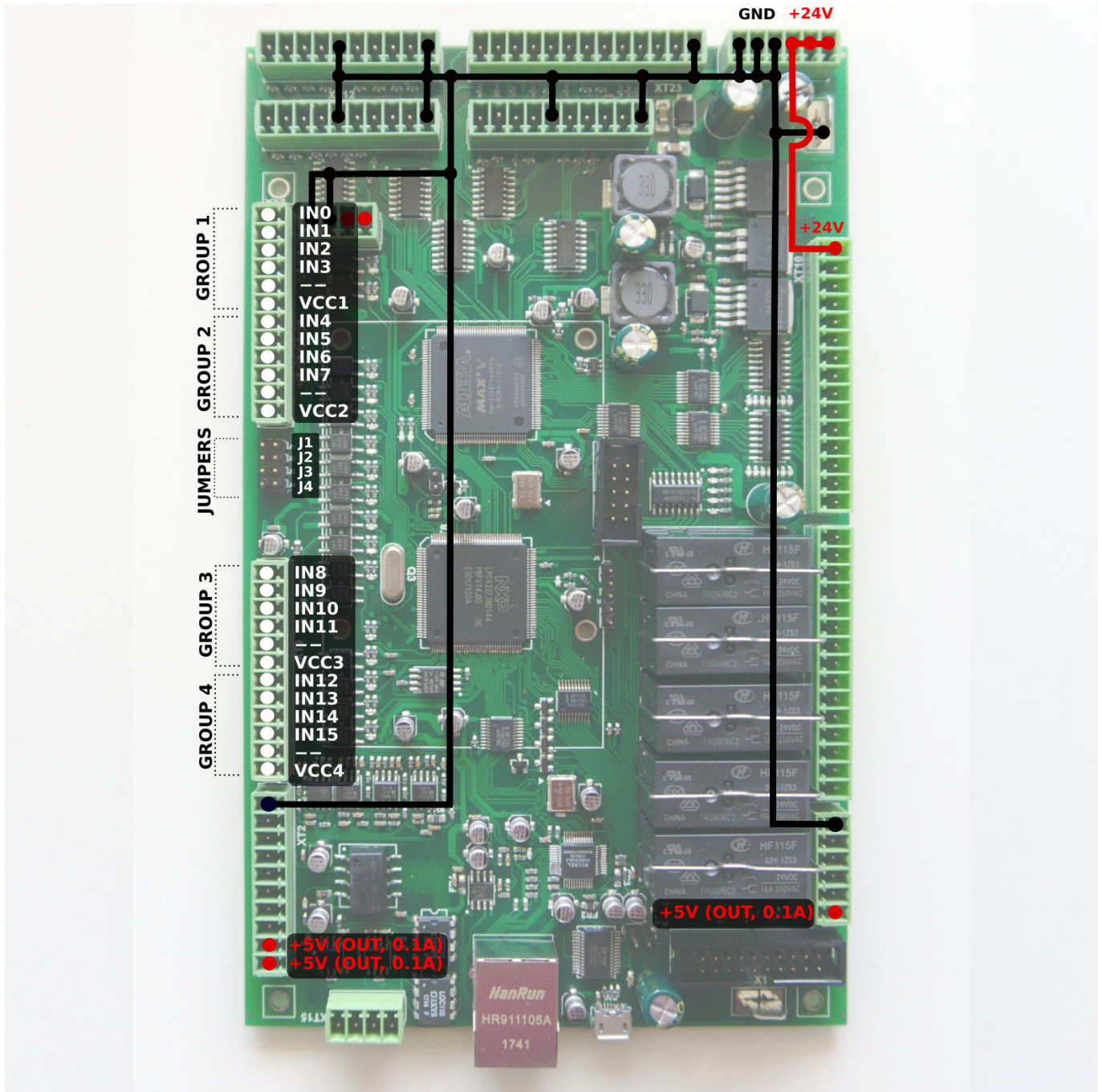


WARNING: The names for the ADC inputs printed at the bottom of the board are NOT correct.

Please consult the above schematics for the ADC0/ADC1 input locations.

Jumpers J1, J2, J3 and J4

In order for the board connections to function without an external power supply, the connections can be wired as to draw power from the +24V power supply of the board itself. In order to simplify the setup required for this procedure, jumpers 1 through 4 are put in place, as shown in the diagram below:



Each jumper corresponds to its respective IN group number (for example, J4 for Group 4). In this way, in a configuration without an external power supply, the correct jumper for the group can be closed to supply power from the internal +24V. The switch should also short the wire to GNC (0V) in order for the circuit to be closed.

WARNING: If an external power supply is used, respective jumpers for the group should be OPEN

RS422/RS485 Bus

The myCNC-ET7 control board has a RS422/RS485 bus connector. Modbus ASCII/RTU and Hypertherm Serial communication interfaces are implemented in the myCNC-ET7 control board.

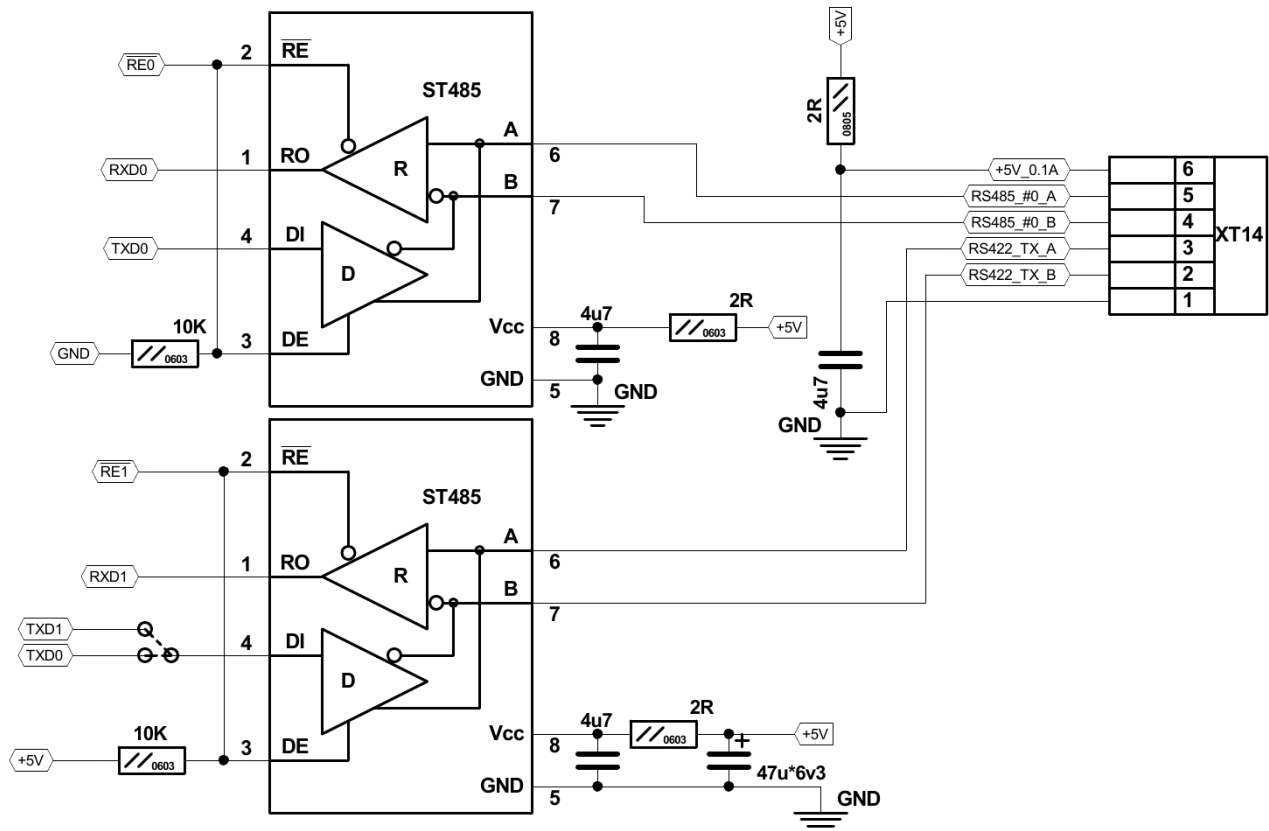
RS485 bus is enabled by default.

To enable RS422 interface you need to

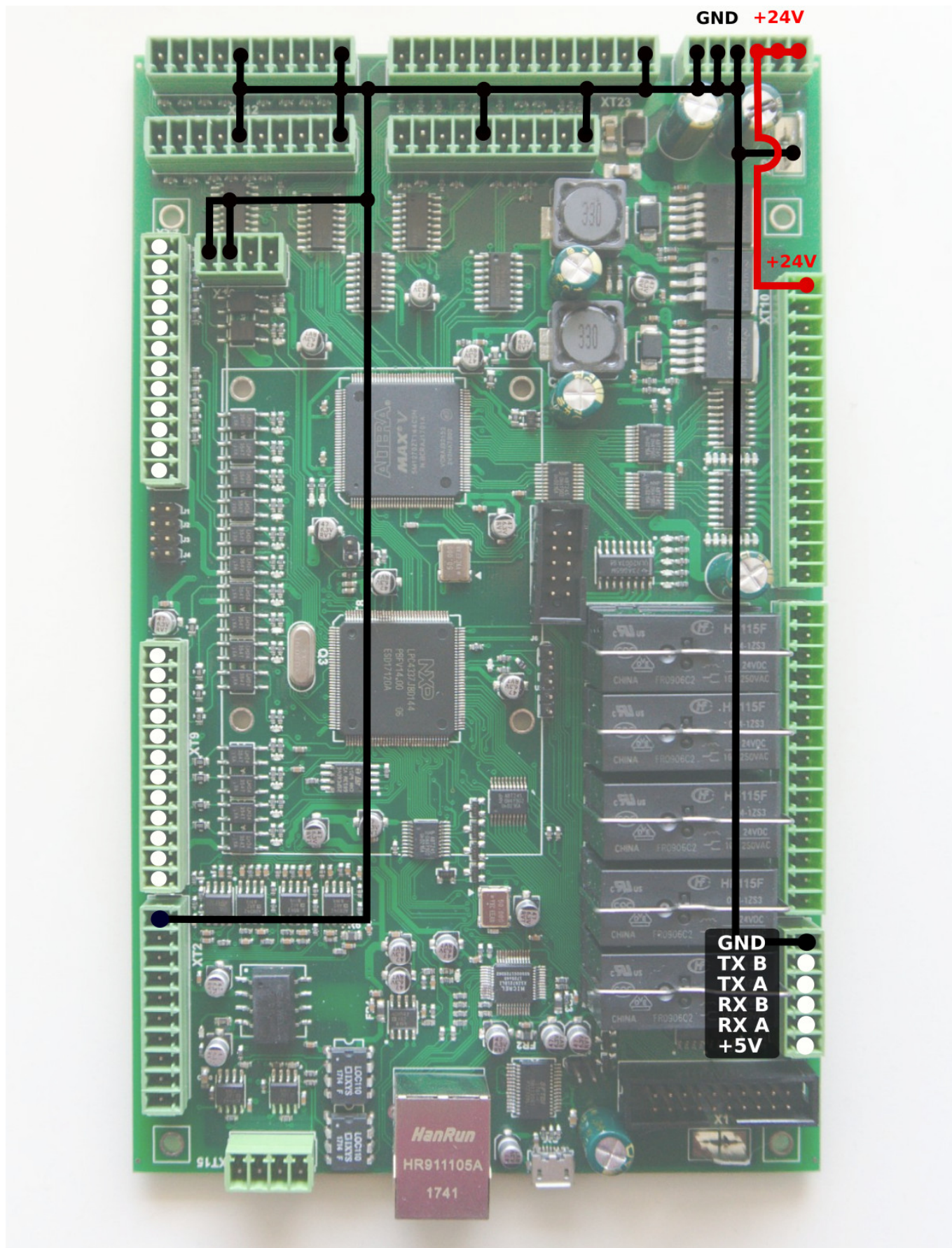
- close jumper J(#)
- setup RS422 interface in the control software.

Please contact our support team if you need to use a RS422 bus.

A RS422/RS485 schematic is shown below



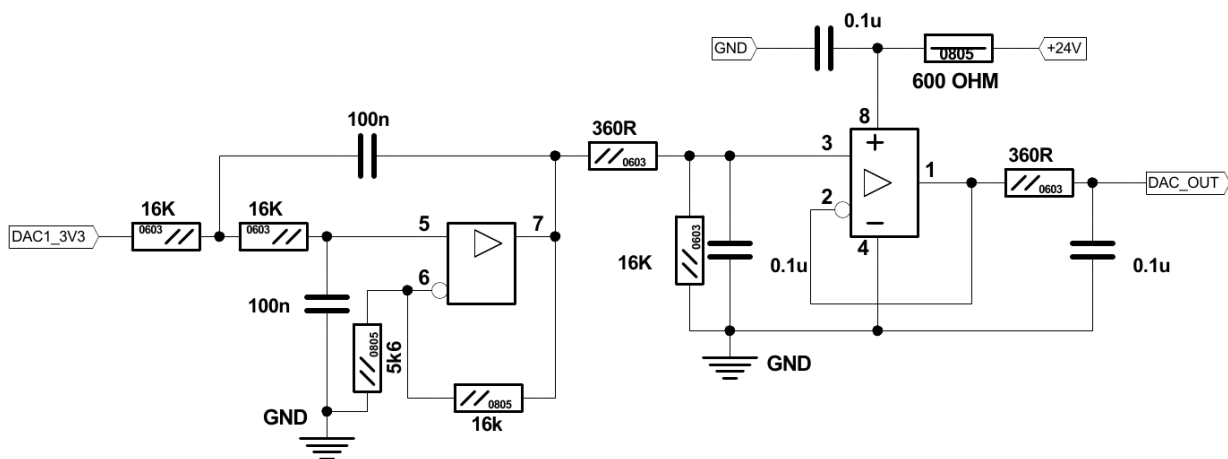
RS422 connector pinout shown below



DAC output

The myCNC-ET7 control board has a DAC output for spindle speed control. DAC output range is 1..12V

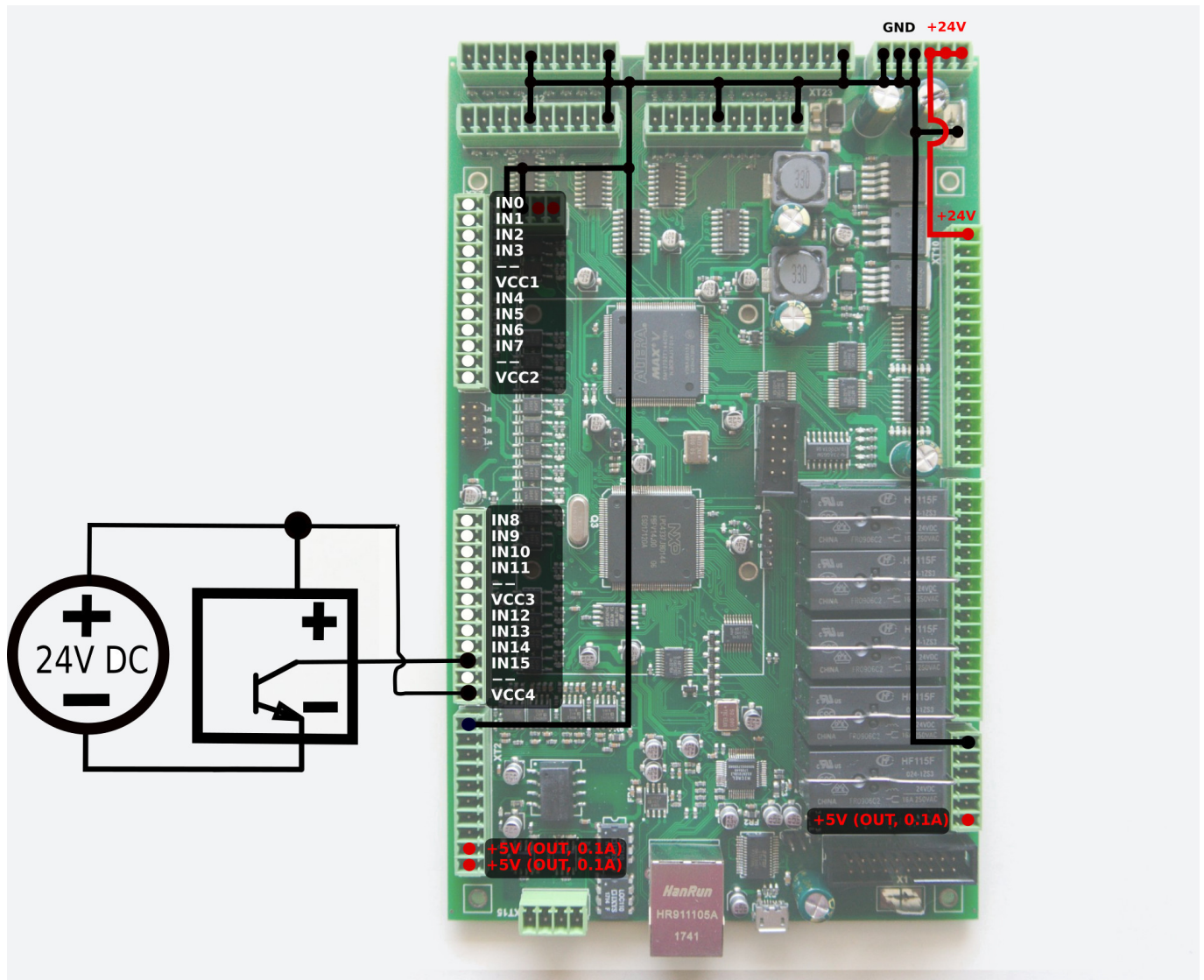
Actual Max DAC voltage (ie 10V, 5V, 6V) can be set up in the myCNC control software.



Connection Examples

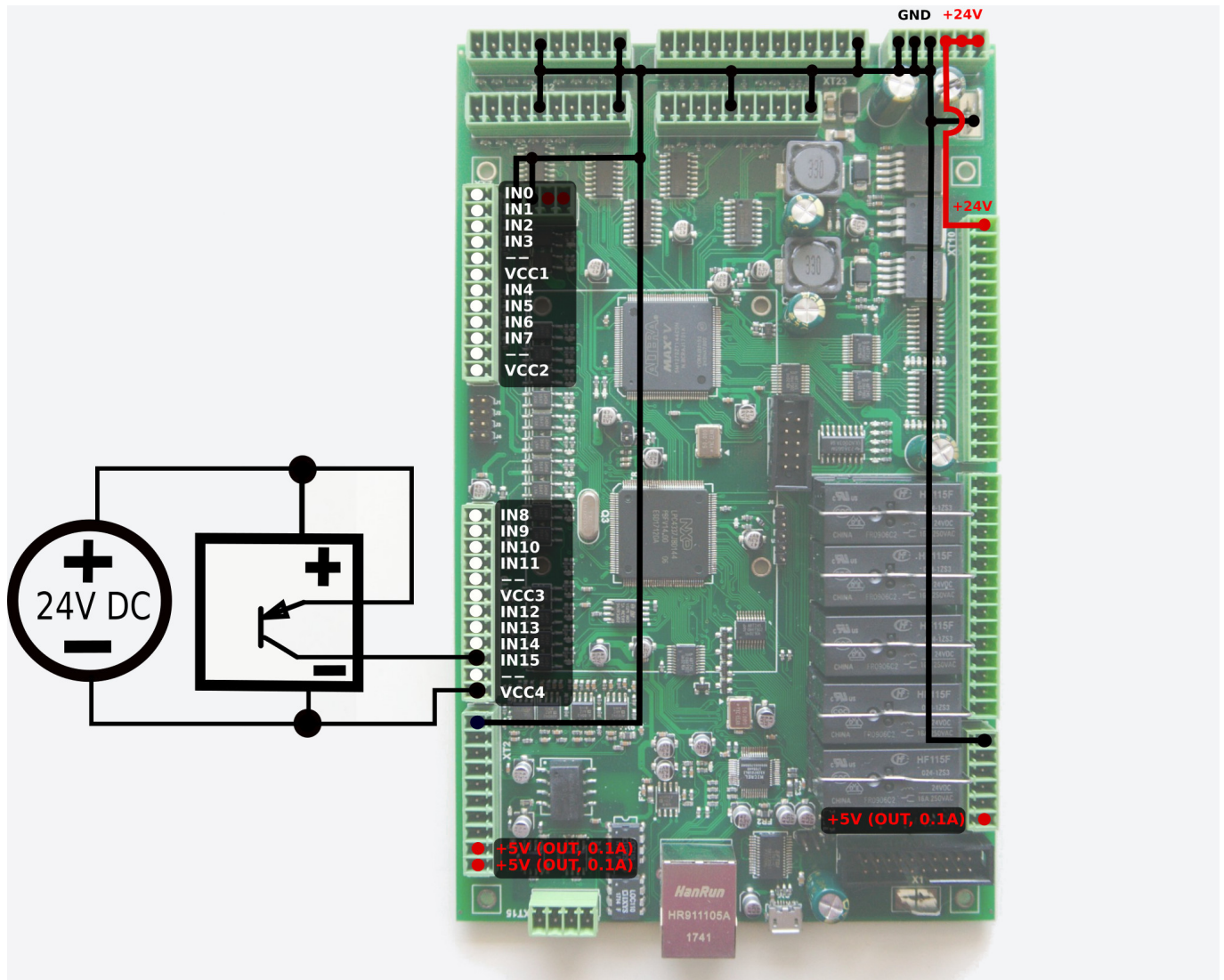
3-wire NPN sensor connection example

Jumpers J1,J2,J3,J4 are all open.



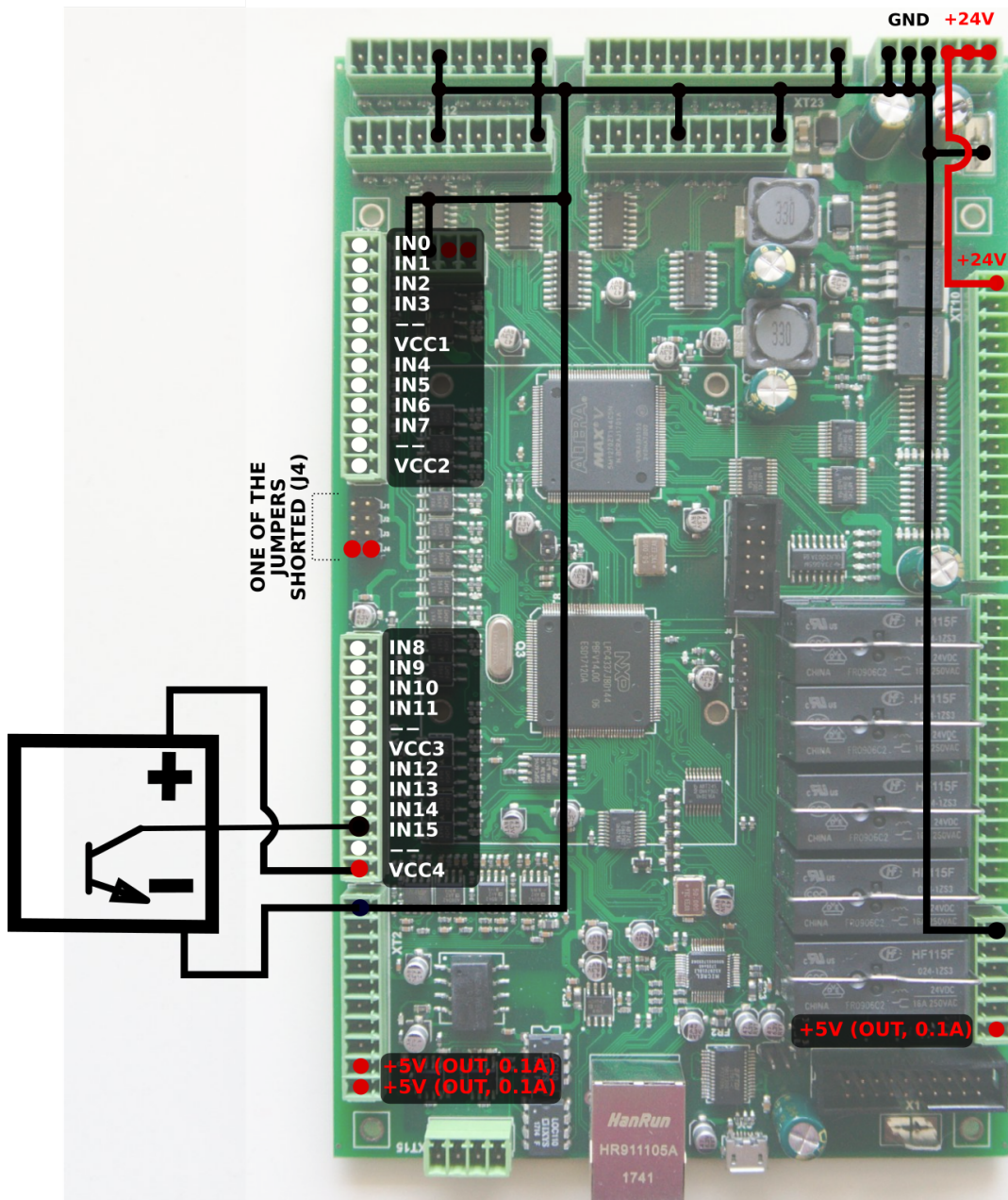
3-wire PNP sensor connection example

Jumpers J1,J2,J3,J4 are all open.



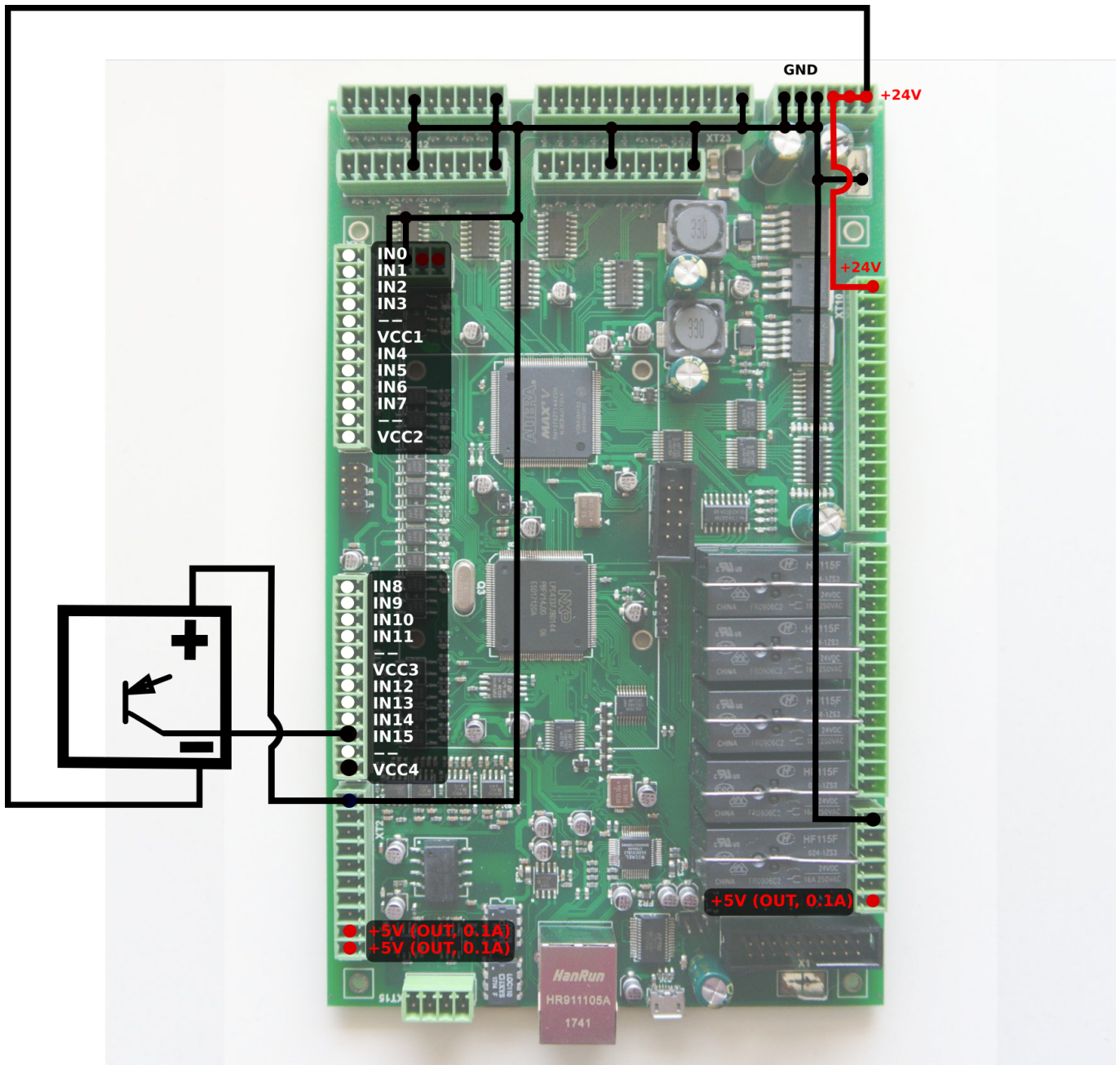
3-wire NPN sensor connection example (internal power supply)

Internal power supply.
One of jumpers J1,J2,J3,J4 (J4 in case of this example) is closed.



3-wire PNP sensor connection example (internal power supply)

Internal power supply.
All of jumpers J1,J2,J3,J4 are open.



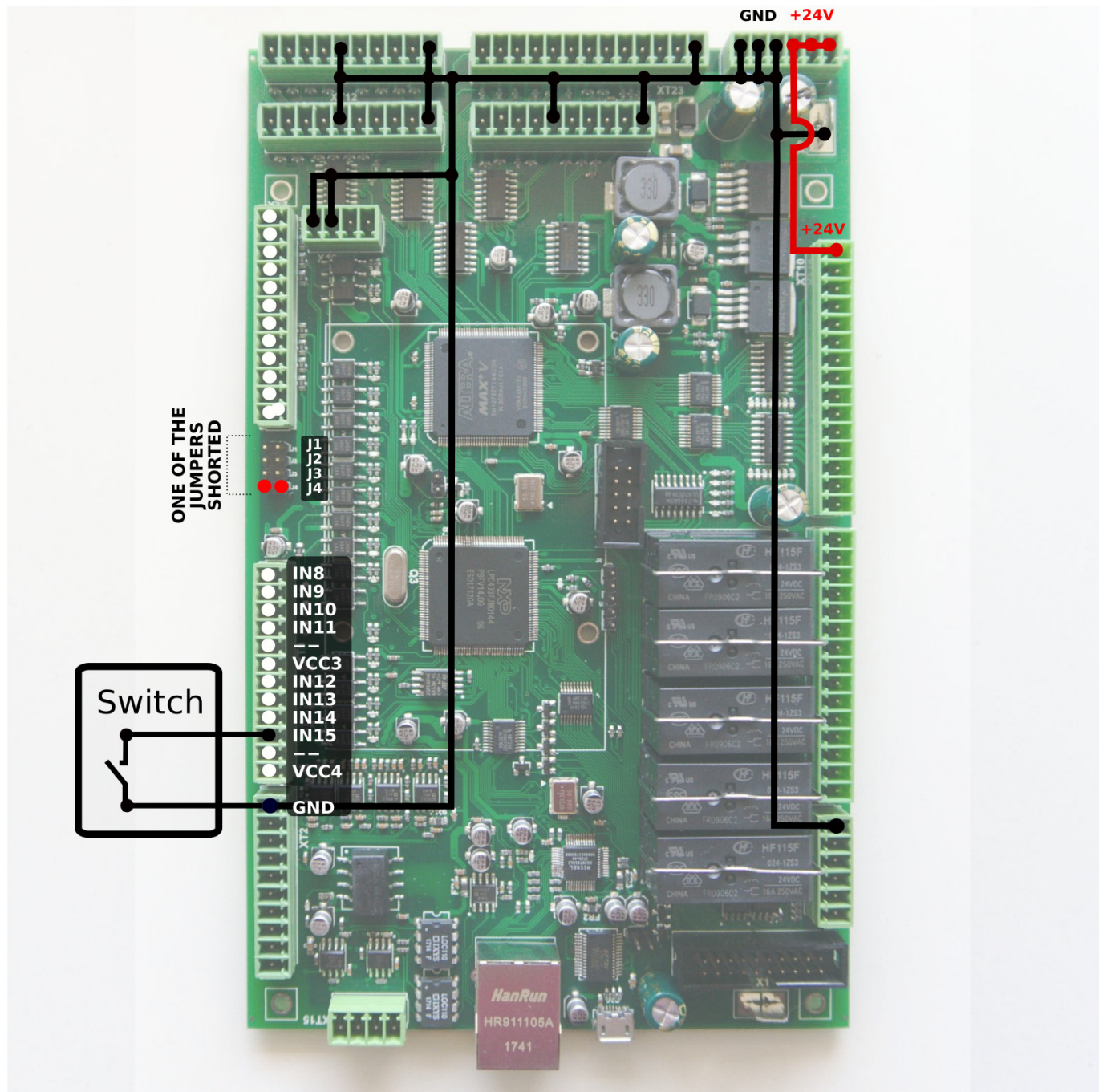
As the sensor requires a 24V power supply, it is necessary to connect it to the 24V port, not the 5V.

Switch connection example

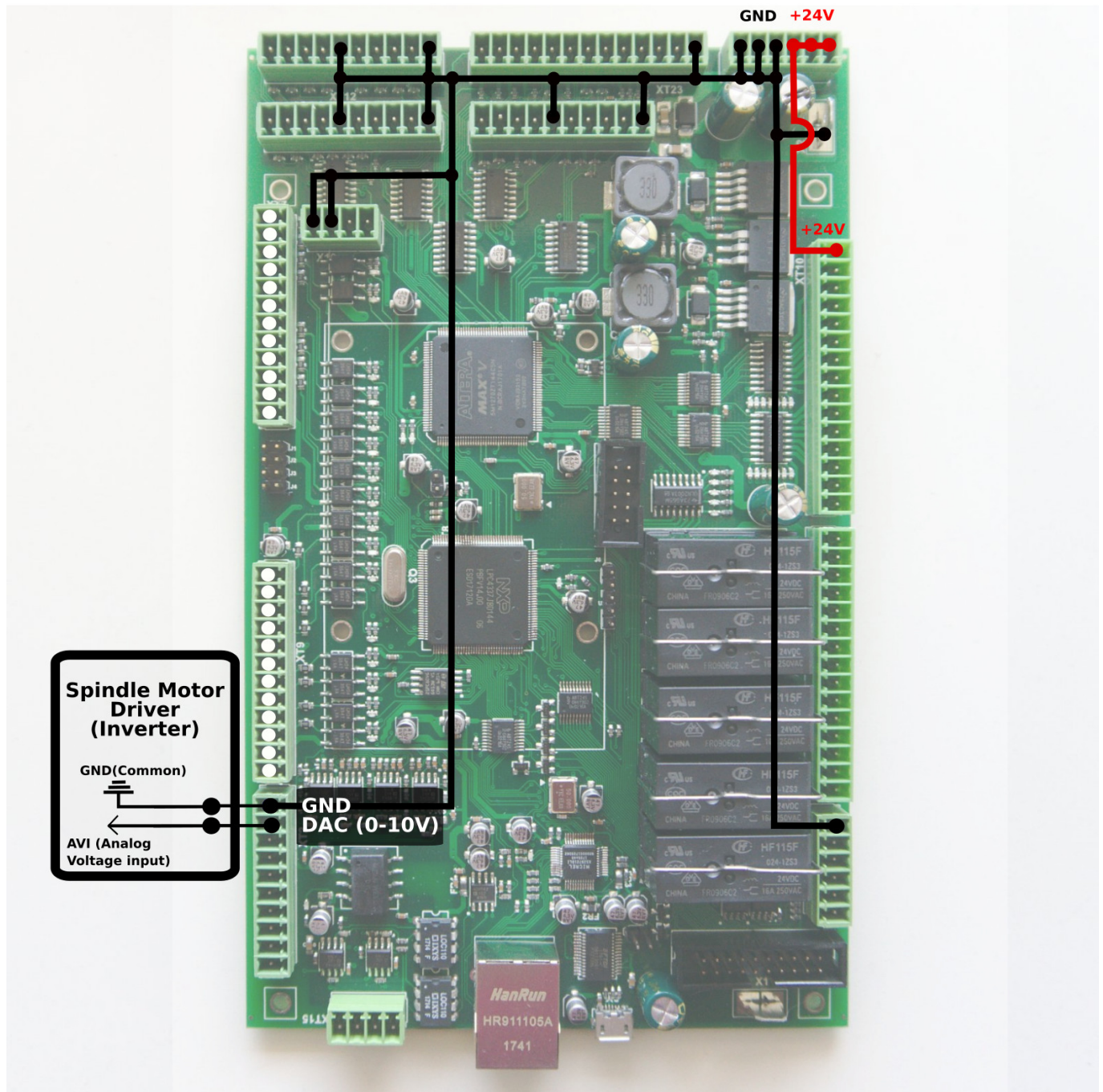
Jumper for selected group (one of J1,J2,J3,J4) is closed.

Common wire for 4 optocouple units is connected to internal +24V if Jumper is closed. Switch should short another optocouple input to GND (0V) to activate input pin.

J(#)- in this case, J4 - should be closed to connect optocouple pin to +24V. Switch should also short the wire to GNC(0V).



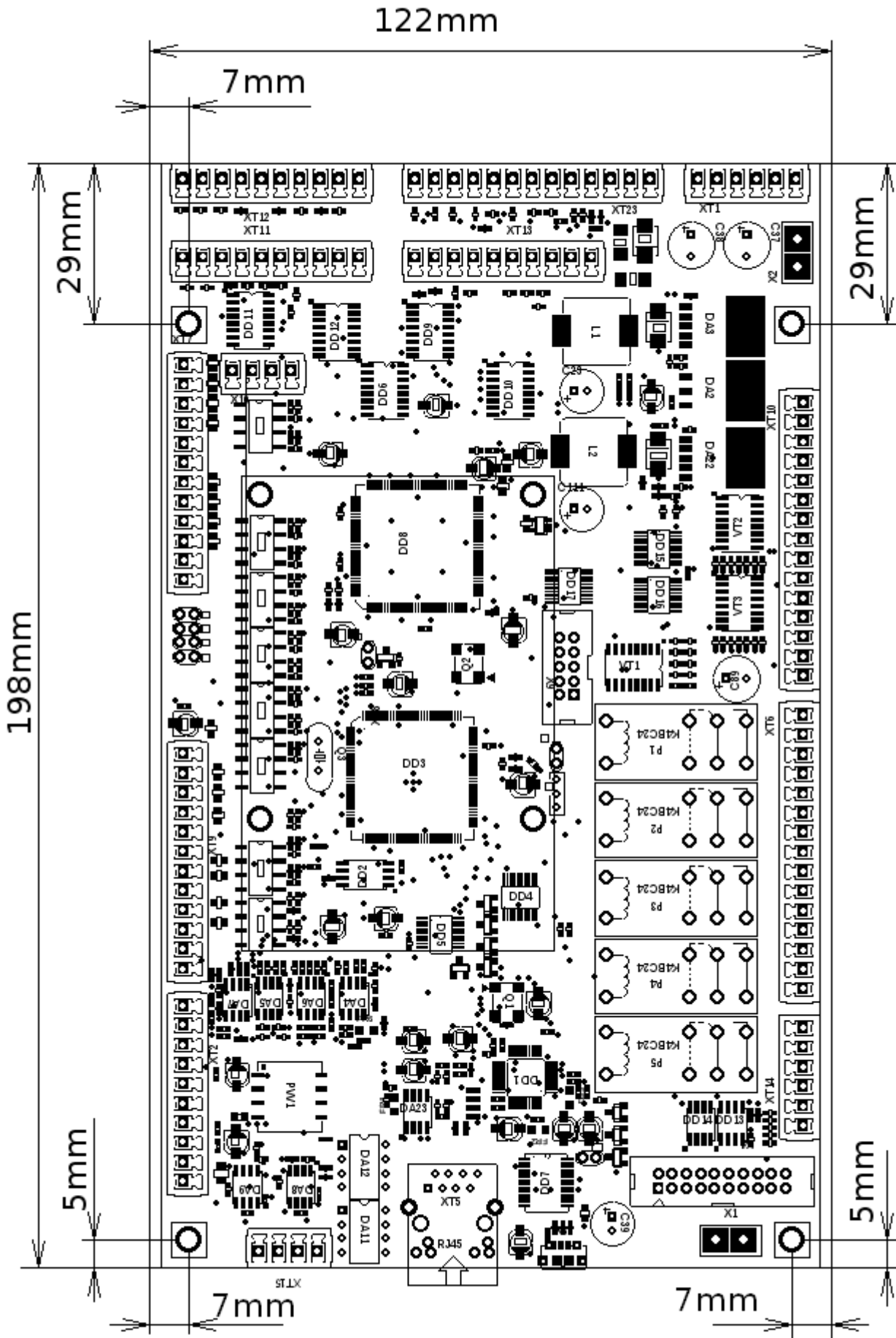
Spindle Speed control over DAC (0-10V) output



Board dimension

PDF: <http://cnc42.com/downloads/et7-r45.pdf>

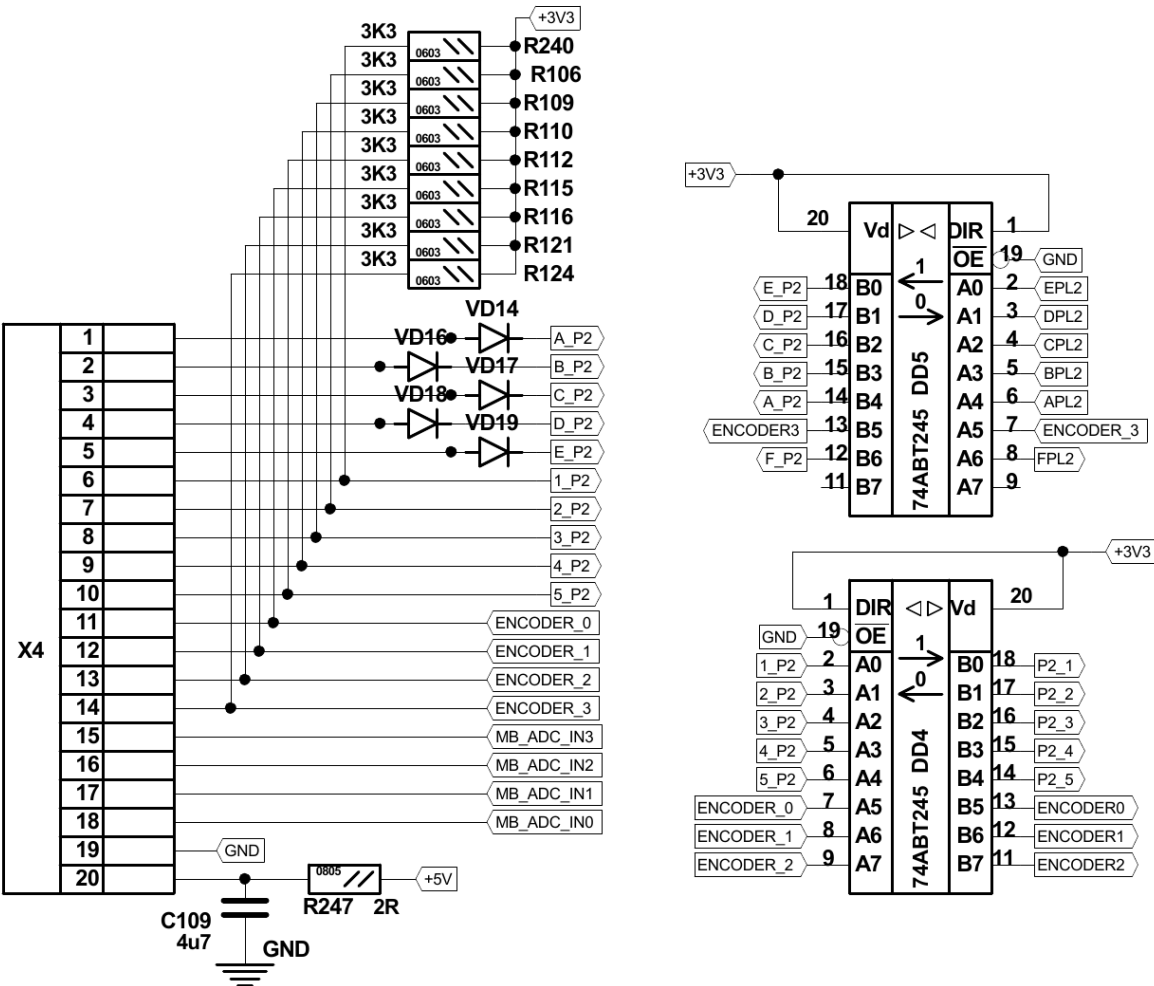
DXF: <http://cnc42.com/downloads/et7-r45.dxf>



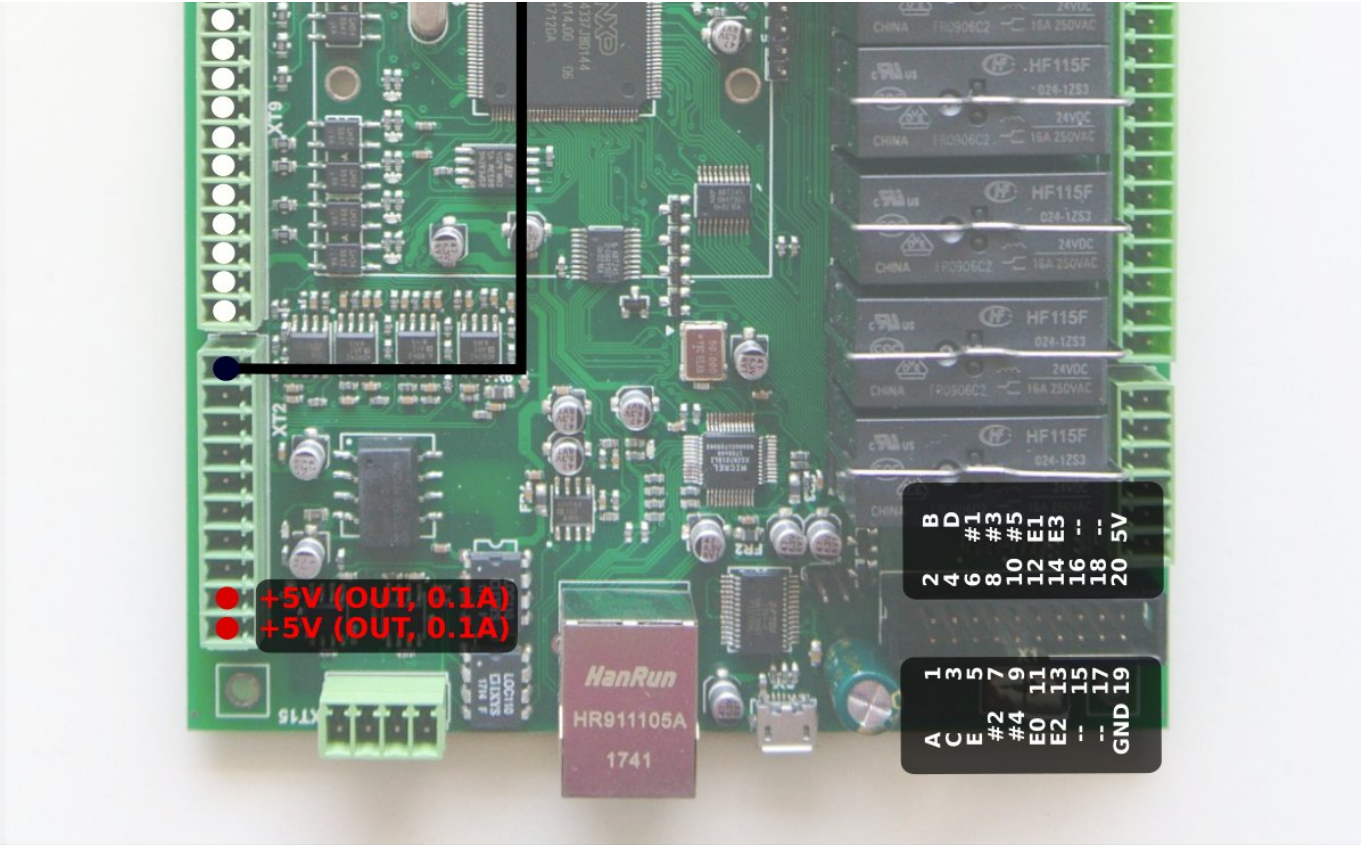
ET7 keypad board

We have a simple keypad board that can be used with the ET7 controller. Keypad board is connected to an ET7 controller through a `20 wires flat cable. Keypad contains 23 keys, 2x rotary encoders and double-axes simple resistive joystick.

ET7 control board interface to connect external keyboard is shown below



ET7 connector pinout

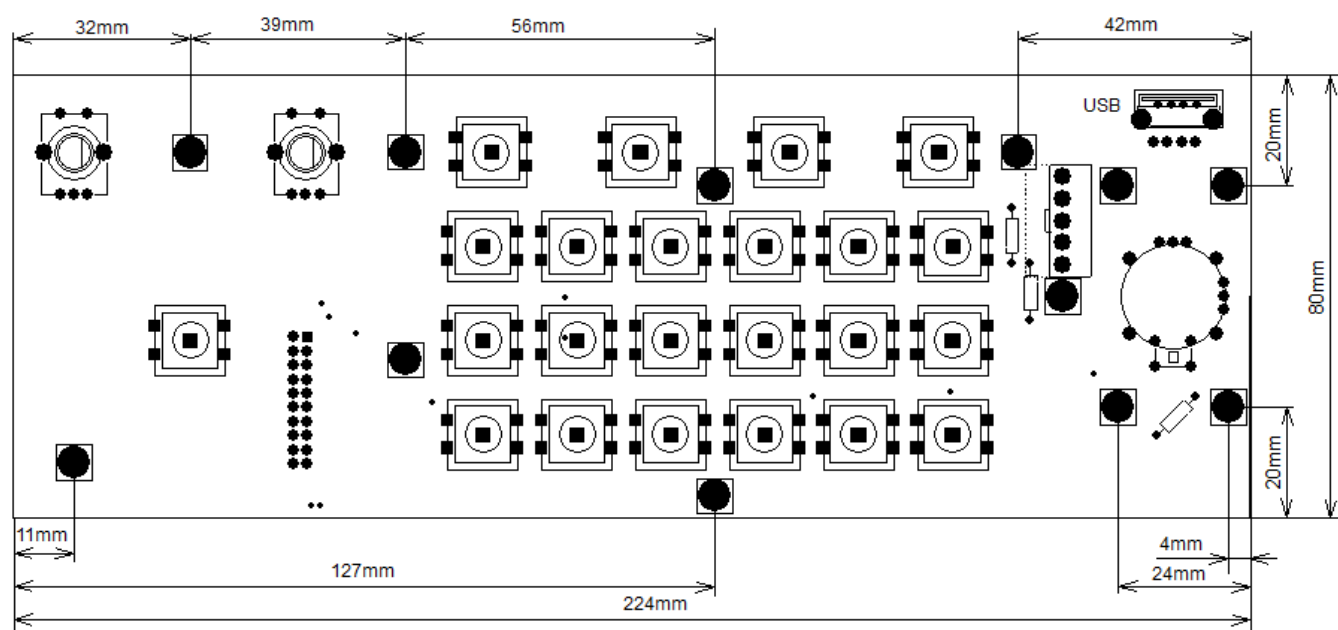


ET7 connector X4 pinout table

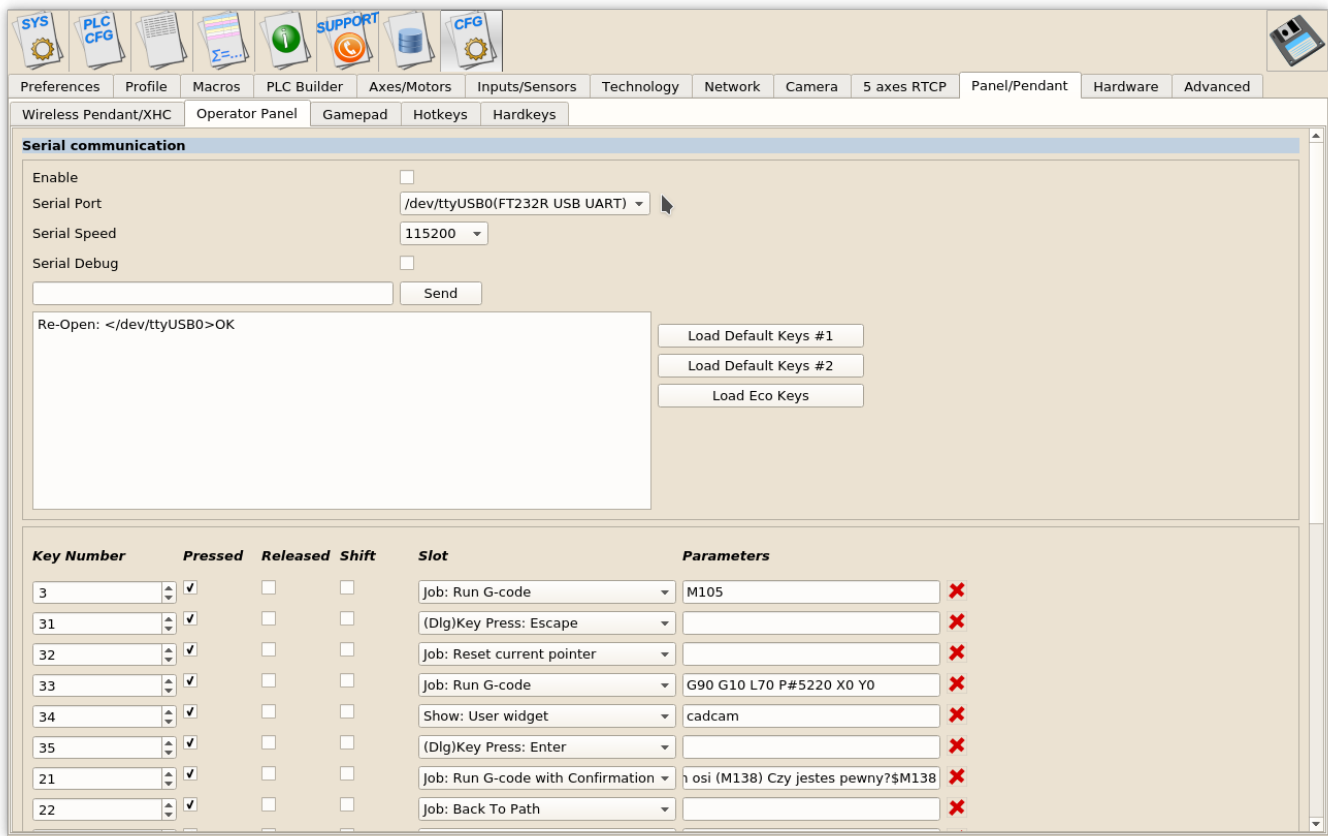
X4 connector to External 25-keys keyboard		
Pin#	Name	Comments
1	OUT A	Keyboard matrix output pins
2	OUT B	Keyboard matrix output pins
3	OUT C	Keyboard matrix output pins
4	OUT D	Keyboard matrix output pins
5	OUT E	Keyboard matrix output pins
6	IN #1	Keyboard matrix input pins
7	IN #2	Keyboard matrix input pins
8	IN #3	Keyboard matrix input pins
9	IN #4	Keyboard matrix input pins
10	IN #5	Keyboard matrix input pins
11	E#0	Encoder input (General purpose input)
12	E#1	Encoder input (General purpose input)
13	E#2	Encoder input (General purpose input)
14	E#3	Encoder input (General purpose input)
15	ADC _	
16	ADC _	
17	ADC _	
18	ADC _	
19	GND	
20	5V	

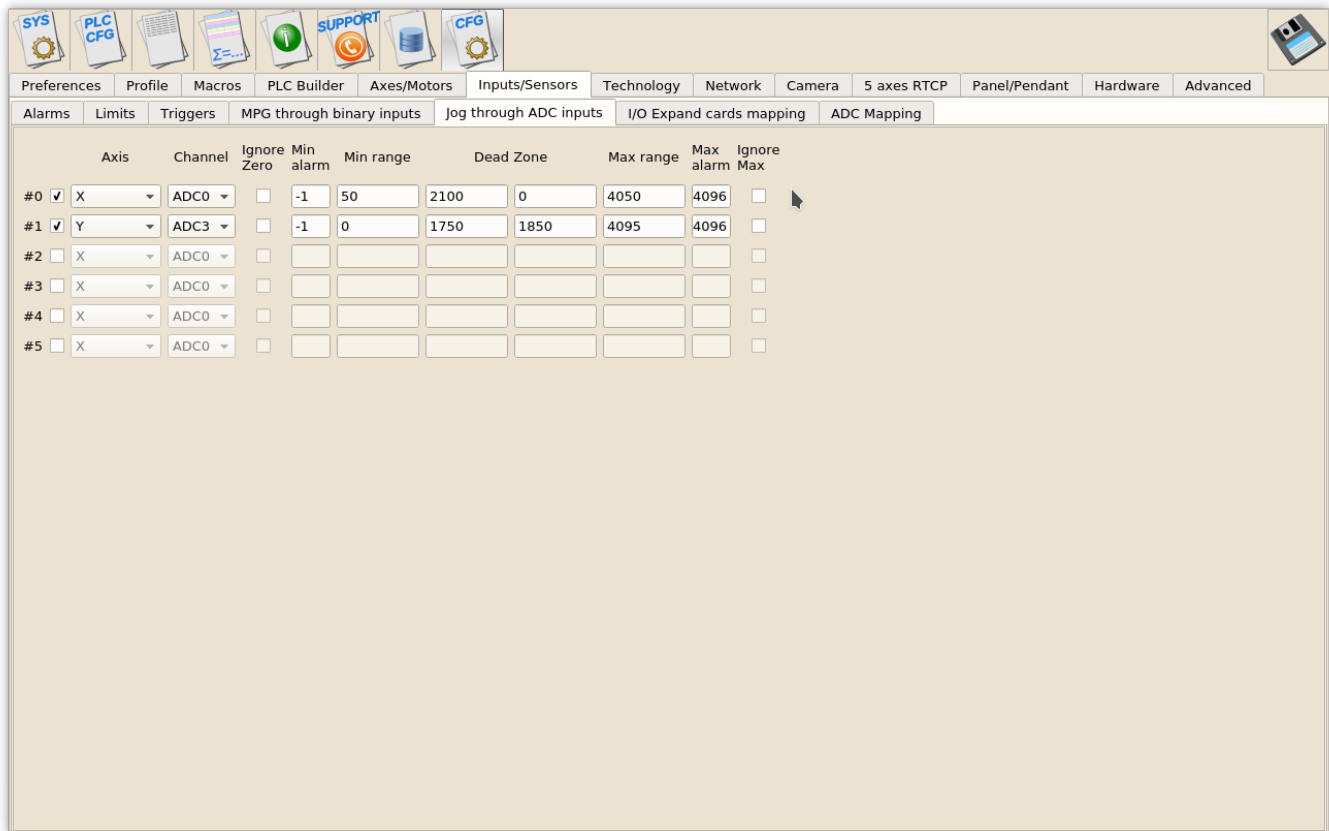
PDF: <http://cnc42.com/downloads/et7-keypad-dimensions.pdf>

DXF: <http://cnc42.com/downloads/et7-keypad-dimensions.dxf>

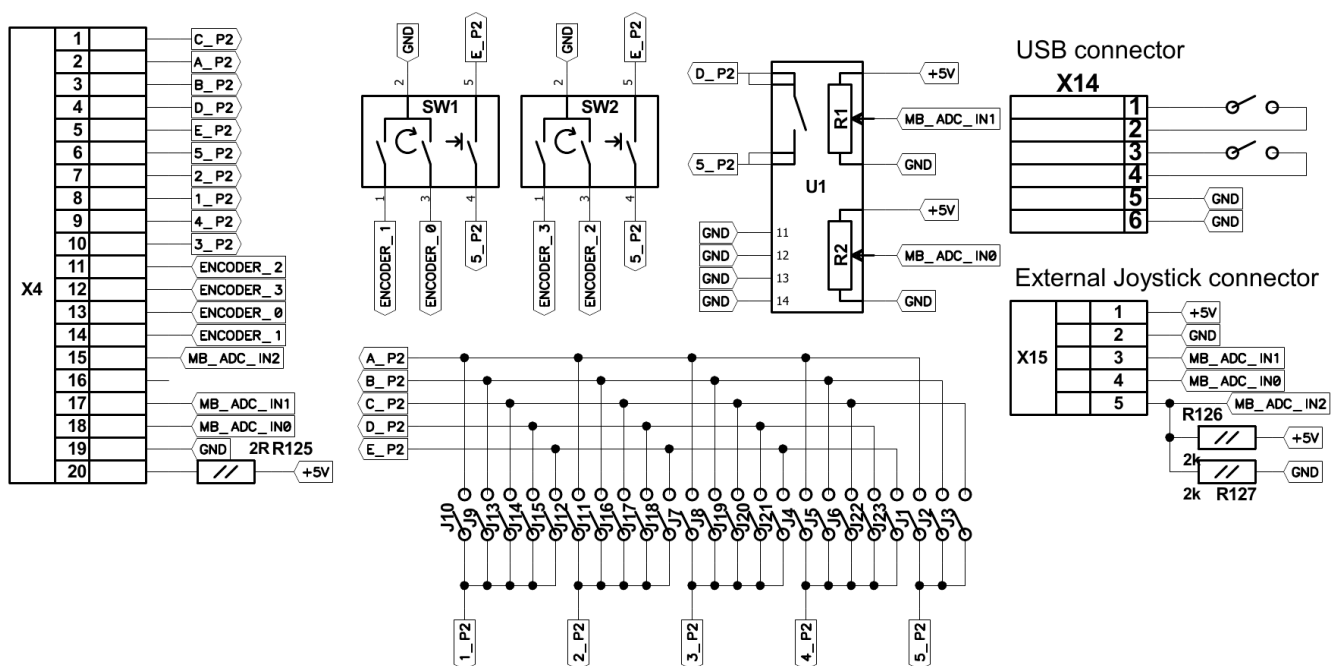


Each key, rotary encoder and the joystick functions can be programmed in configuration dialogs.





Schematics of the external ET7-KEY board is shown below



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