Breakoutboard Mega for EstIcam

Manual

Einleitung

This manual contains instructions for mounting, using the breakout board

**It is imperative to connect 230V connections by a knowledgeable electrician.**

These operating instructions have been prepared with care. If you still find errors, we would be grateful for an appropriate reference.

The 5V Output can you use for the Stepper,Servo Driver or Switches max 1A Output

Power Input from 12-37V

Stefan Gemeinert,Frühlingstrasse 8 85253 Erdweg
Tel: 081386695536   www.cnc-technics.de
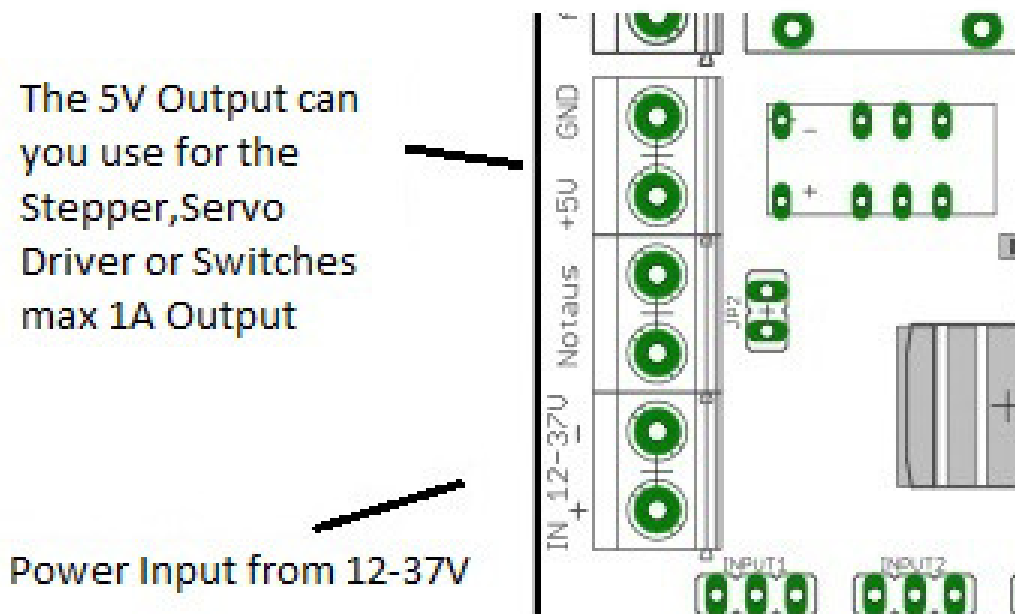
Description of the breakout board

The Mega breakout board enables the operation of up to 3 stepper motor or servo output stages (also parallel switching of the driver output stages possible if 50mA is not exceeded at the output) to Estlcam. It is used with Arduino Mega plugged onto the board.
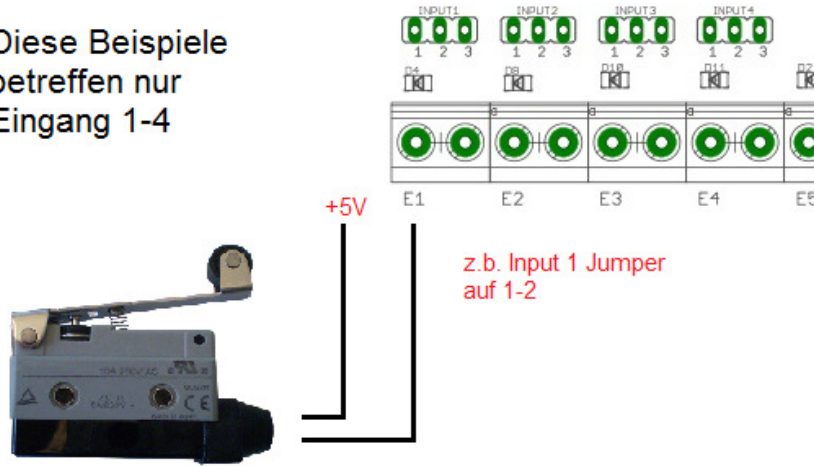
For this the control software Estlcam (not included) is used. The board has various inputs and outputs that can be individually adjusted. There are additional functions such as controlling a frequency converter via an analog signal of 0-10V or 0-5V, reference switch, 2 relay outputs, spindle relay output. Input and output signals are protected by optocouplers. All input signals are rated from 5V to 30V, ensuring ruggedness and compatibility even with industrial sensors (NPN (for input 1-4) or PNP SENSORS).
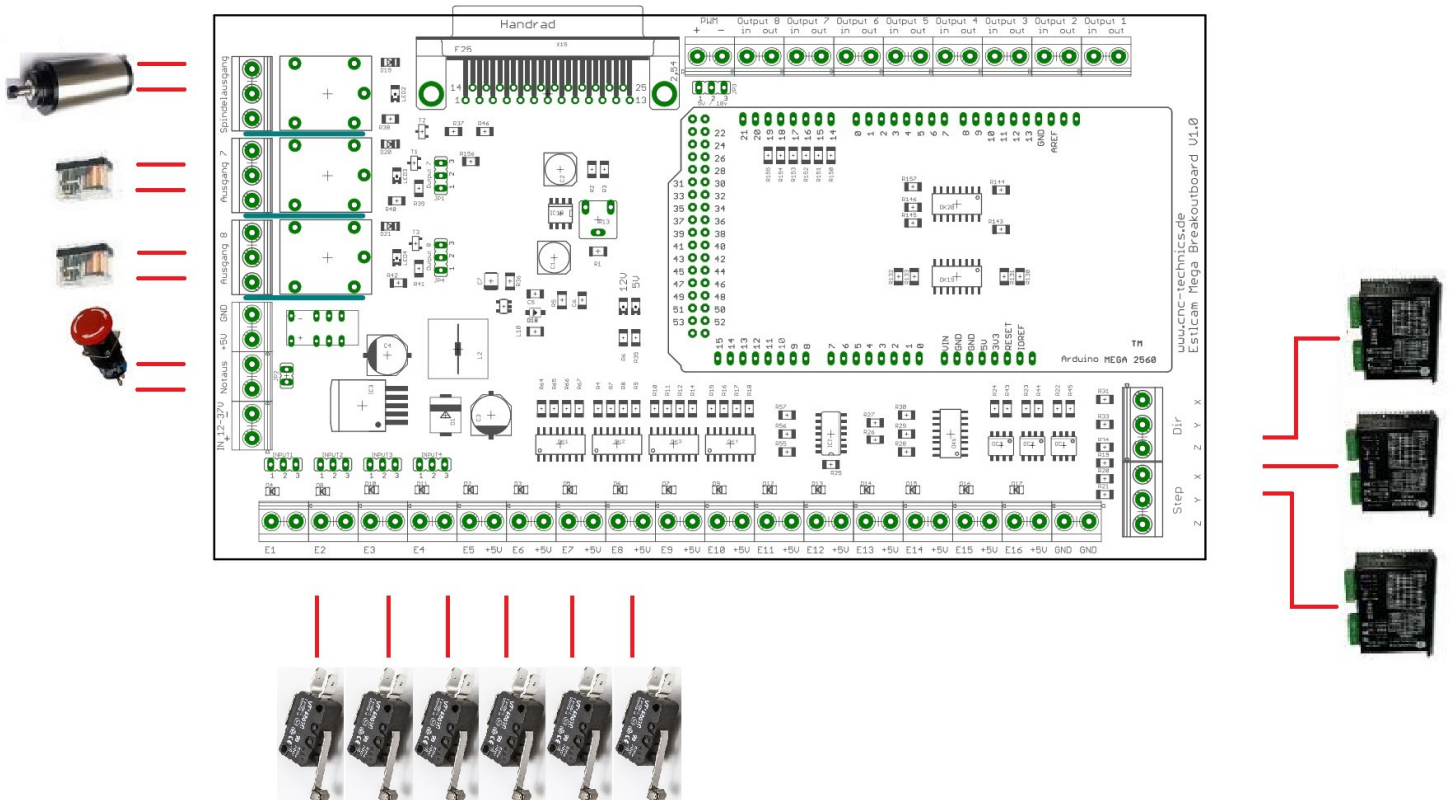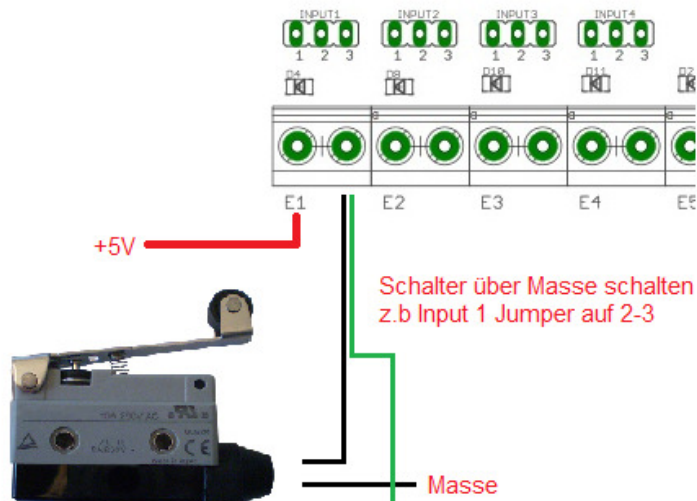
Inputs

Each input port is provided with its pin number. If the sensor is switched to voltage (PNP sensor) the jumper must be switched to 1-2, with ground switched to 2-3
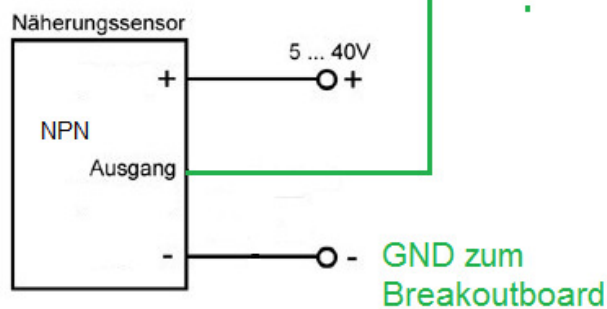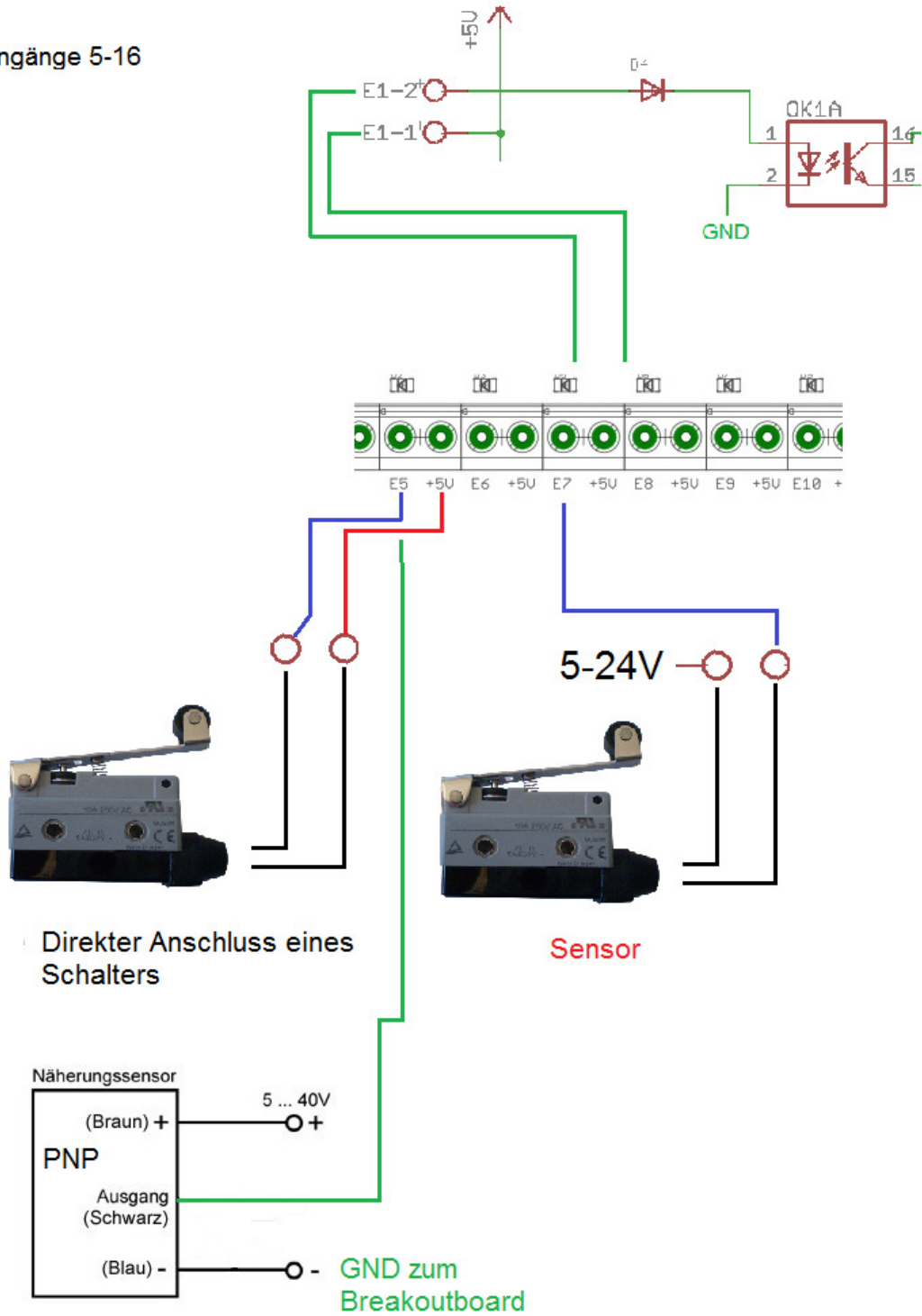
Diese Beispiele betreffen nur Eingang 1-4

z.b. Input 1 Jumper auf 1-2

+5V

Direkter Anschluss eines Schalters

Schalter über Masse schalten z.b Input 1 Jumper auf 2-3

+5V

Masse

Direkter Anschluss eines Schalters

Näherungssensor

5 ... 40V

+

NPN

Ausgang

−

GND zum Breakoutboard

Eingänge 5-16

+5V

E1-2

E1-1

D⁻

OK1A

1   16

2   15

GND

E5 +5V E6 +5V E7 +5V E8 +5V E9 +5V E10 +

5-24V

Direkter Anschluss eines
Schalters

Sensor

Näherungssensor

(Braun) +   5 ... 40V
                 O +

PNP

Ausgang
(Schwarz)

(Blau) -   O -   GND zum
                         Breakoutboard

Tastplatte

Jumper vom z.b. Input1 auf 2-3 setzen

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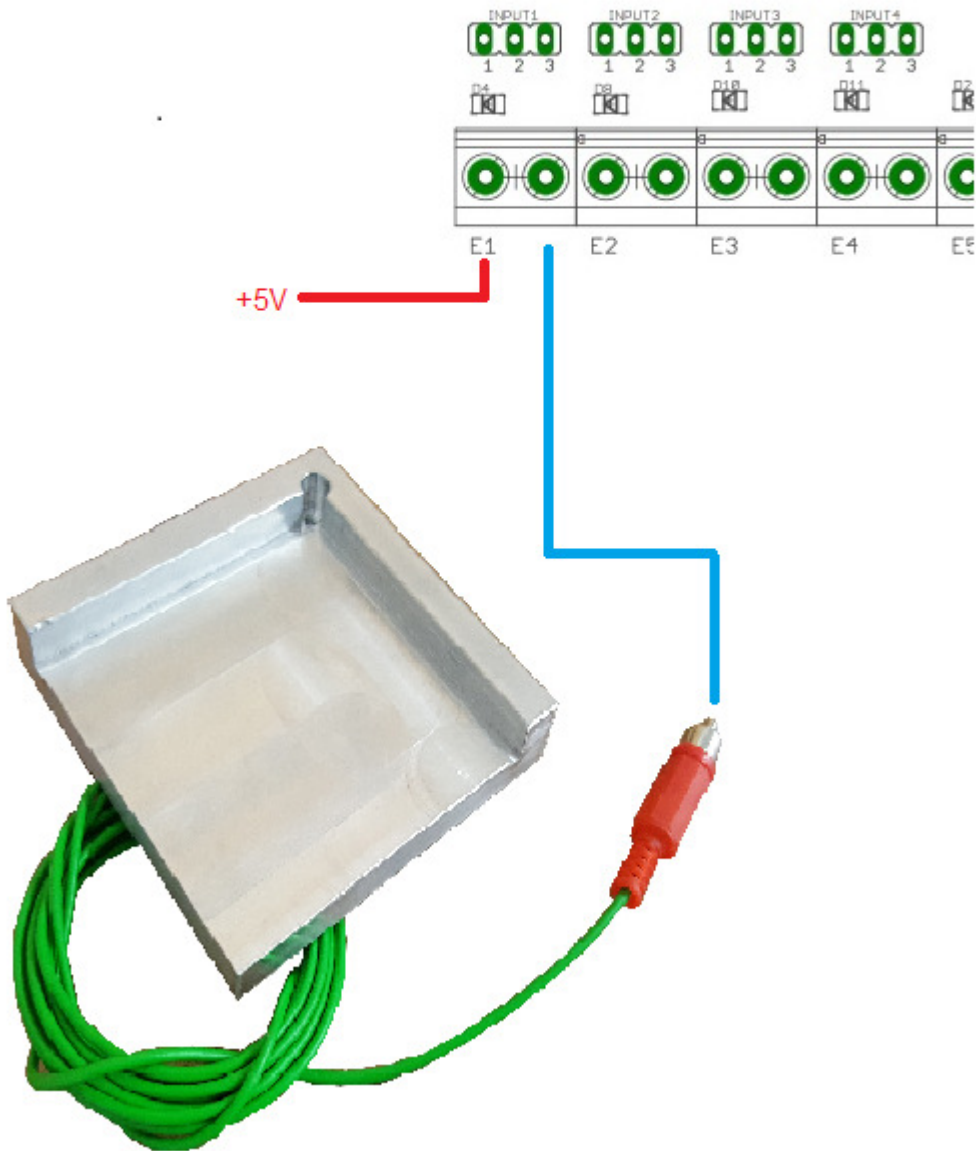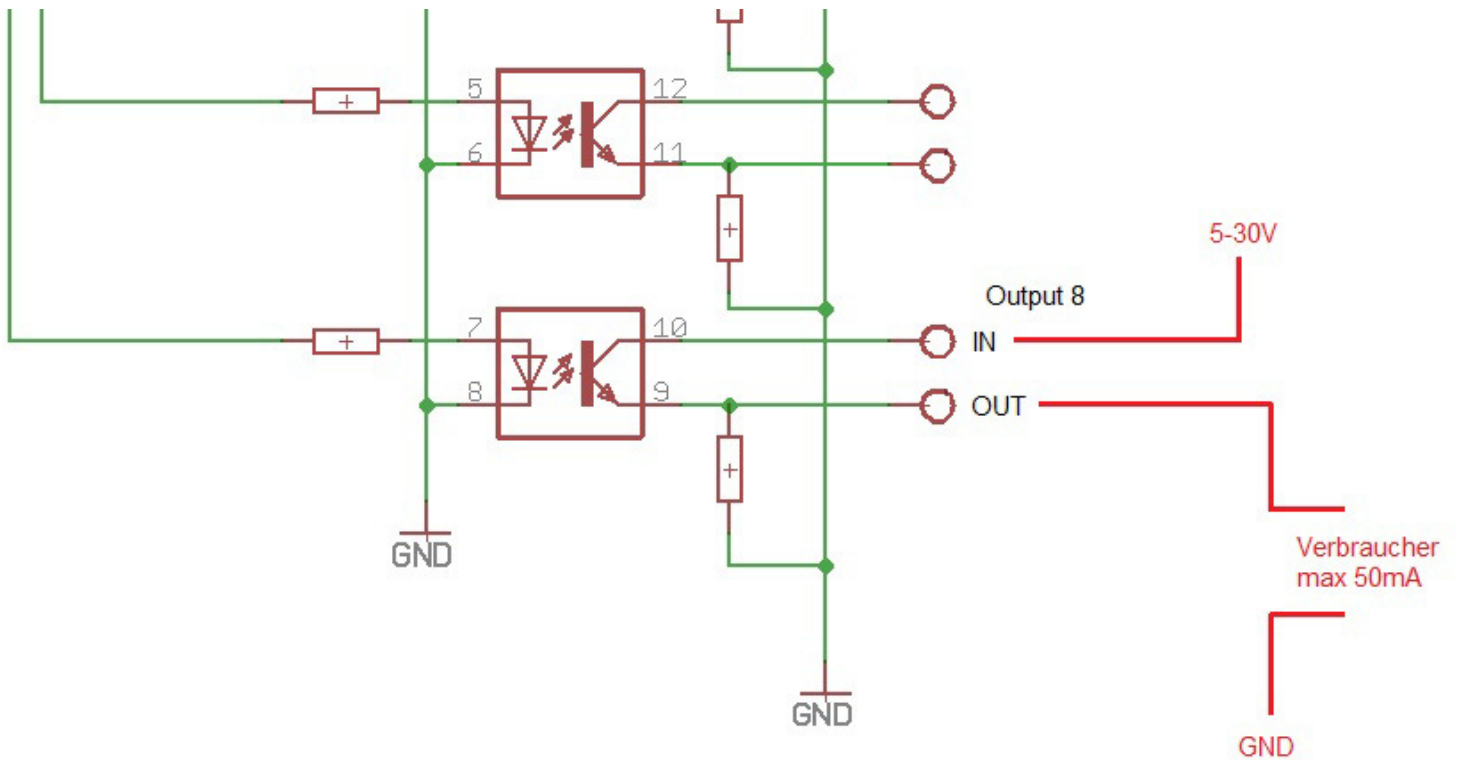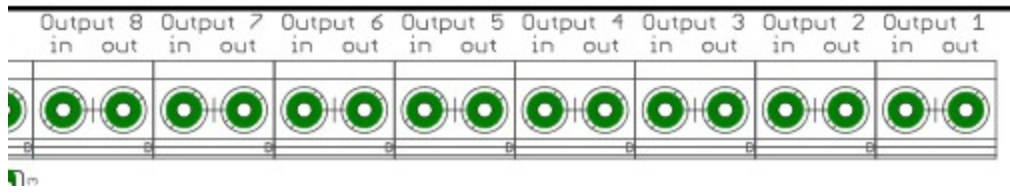
Output Relais
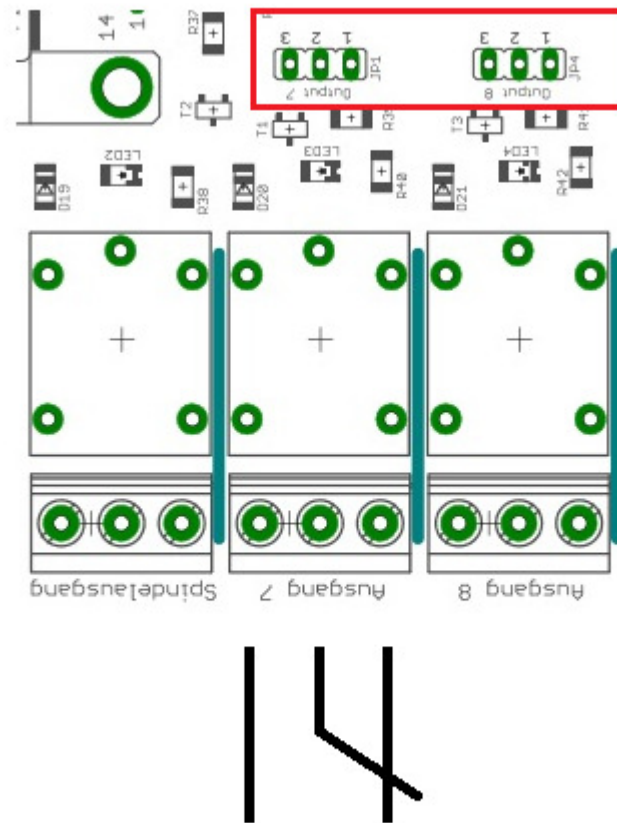
Ausgangsstellung

- Spindle relay output can be used to switch on the spindle Ausgang 7 ist auch
- Relay output 7 at jumper setting 1-2 at 2-3 it is at
  Clamping output 7
- Output 8 is also relay output 8 at jumper setting 1-2 at 2-3 it is at
  Clamping output 8

When plugging in the USB cable, it may happen that some of the Arduino Mega (example by sainsmart) switch the relays short on outputs 7 and 8.

There are 2 relay outputs up to 230V / 10A (2,2KW at 230V) available

Attention: do not connect switching power supplies because they have a very high inrush current, the relay contacts may be defective

Outputs of the terminals

Output 8 in	out	Output 7 in	out	Output 6 in	out	Output 5 in	out	Output 4 in	out	Output 3 in	out	Output 2 in	out	Output 1 in	out

5-30V

Output 8

IN

OUT

Verbraucher max 50mA

GND

GND

GND

Connection Driver

The outputs for the amplifiers can be loaded with max. 50mA

It is also possible to connect 2 driver output stages in parallel to one output for 2 step or servomotors, if the 50mA is not exceeded.

You can disconnected ENA +, ENA- for most amplifiers.That's because the engines are turned on. When it's gone, the engines are on permanently.
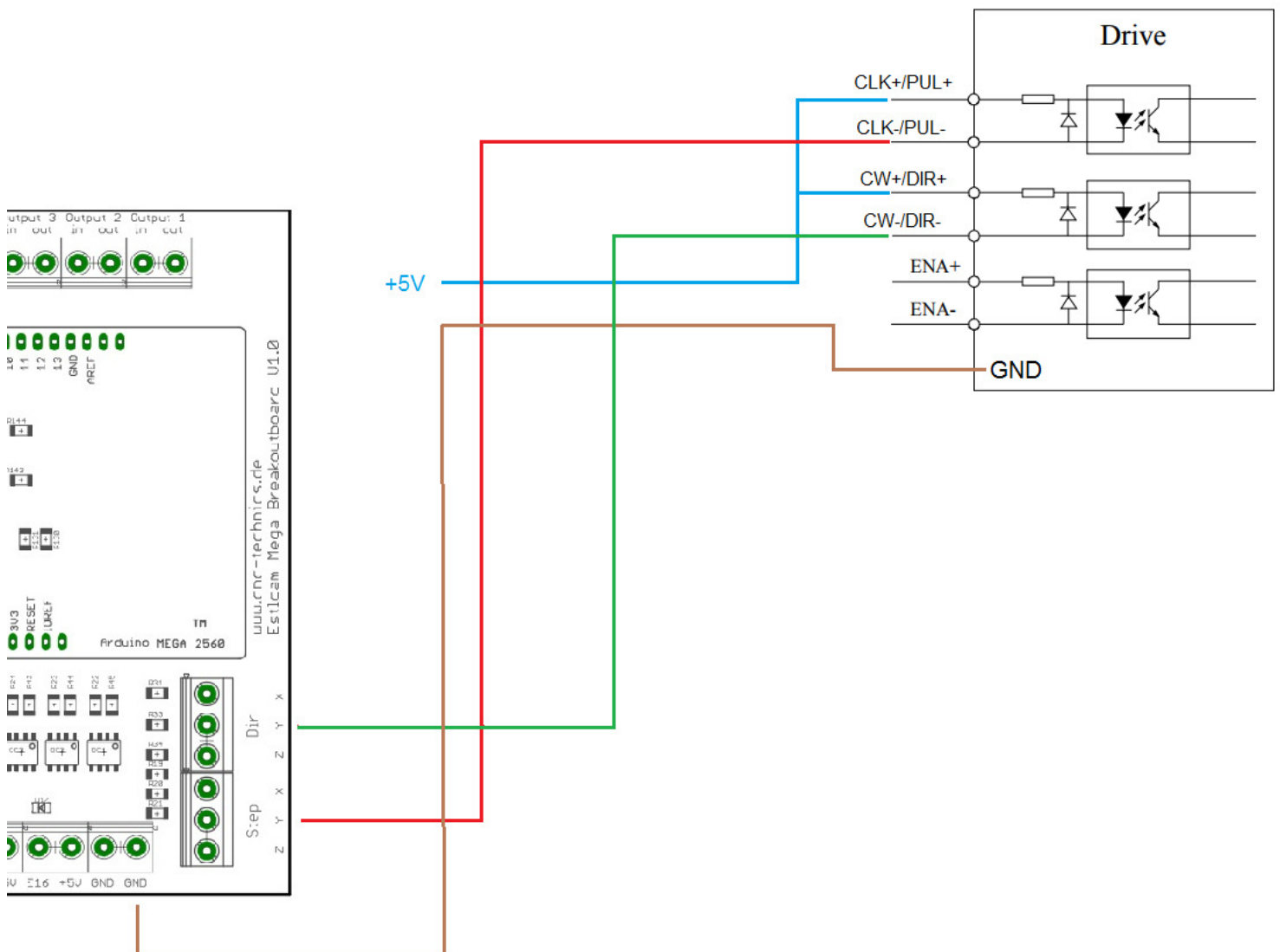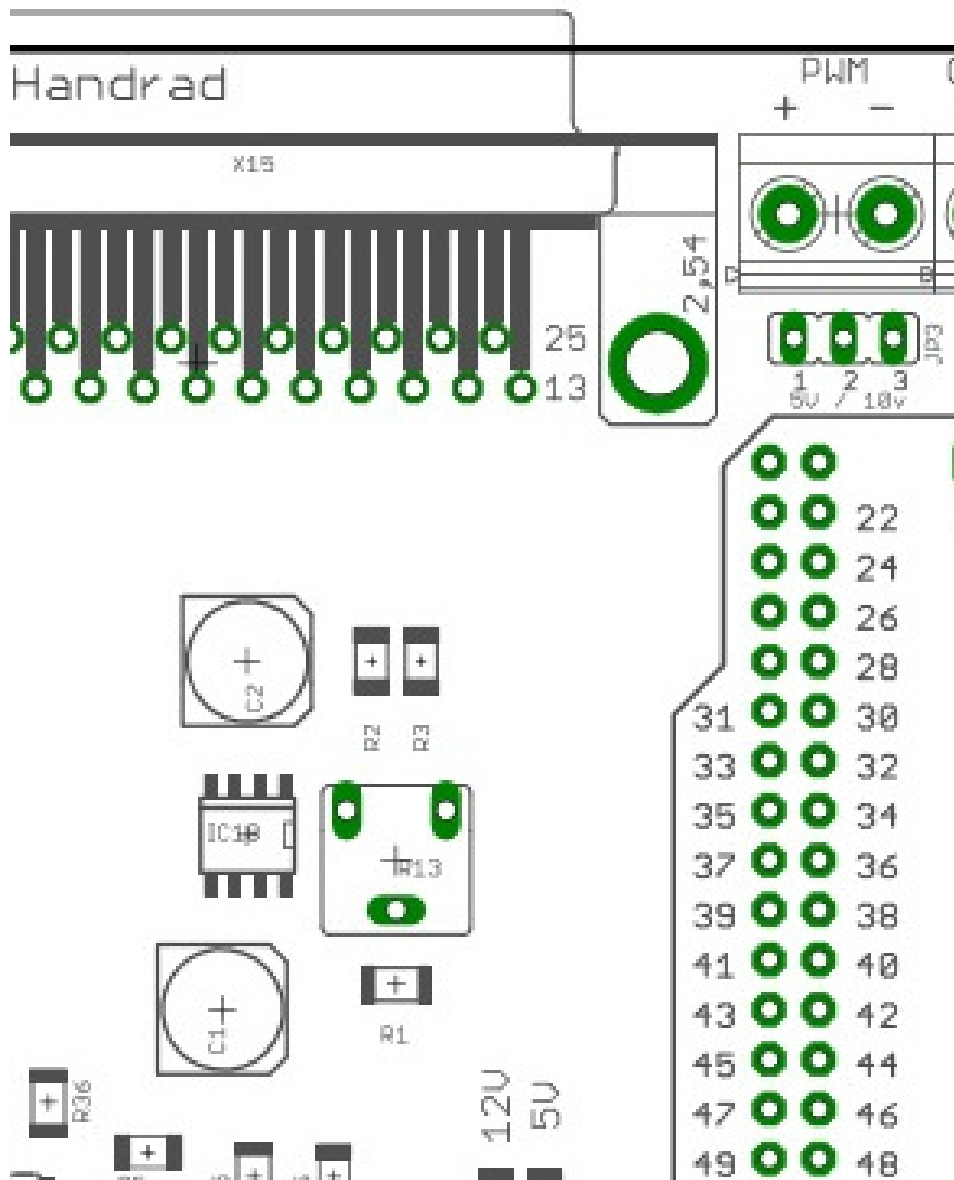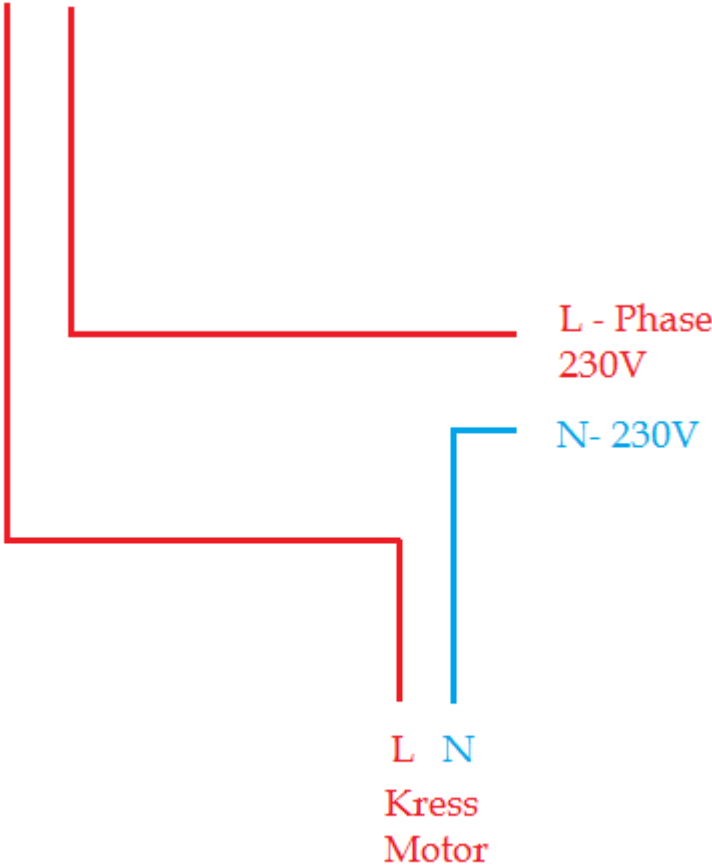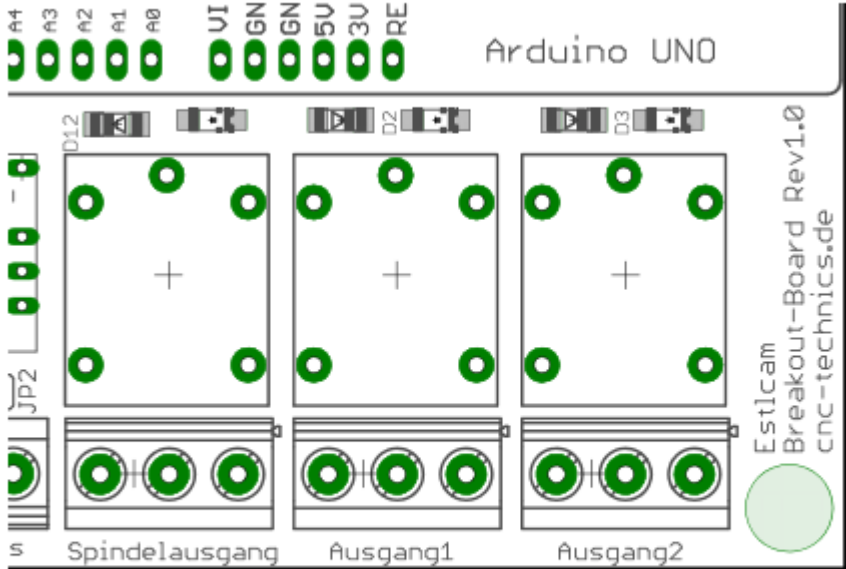
Spindle Output

A frequency converter can be connected for the analogue signal.

At the jumper JP3 spindle PWM comes at bridge 1-2 = 5V or bridge 2-3 = 10V as output signal
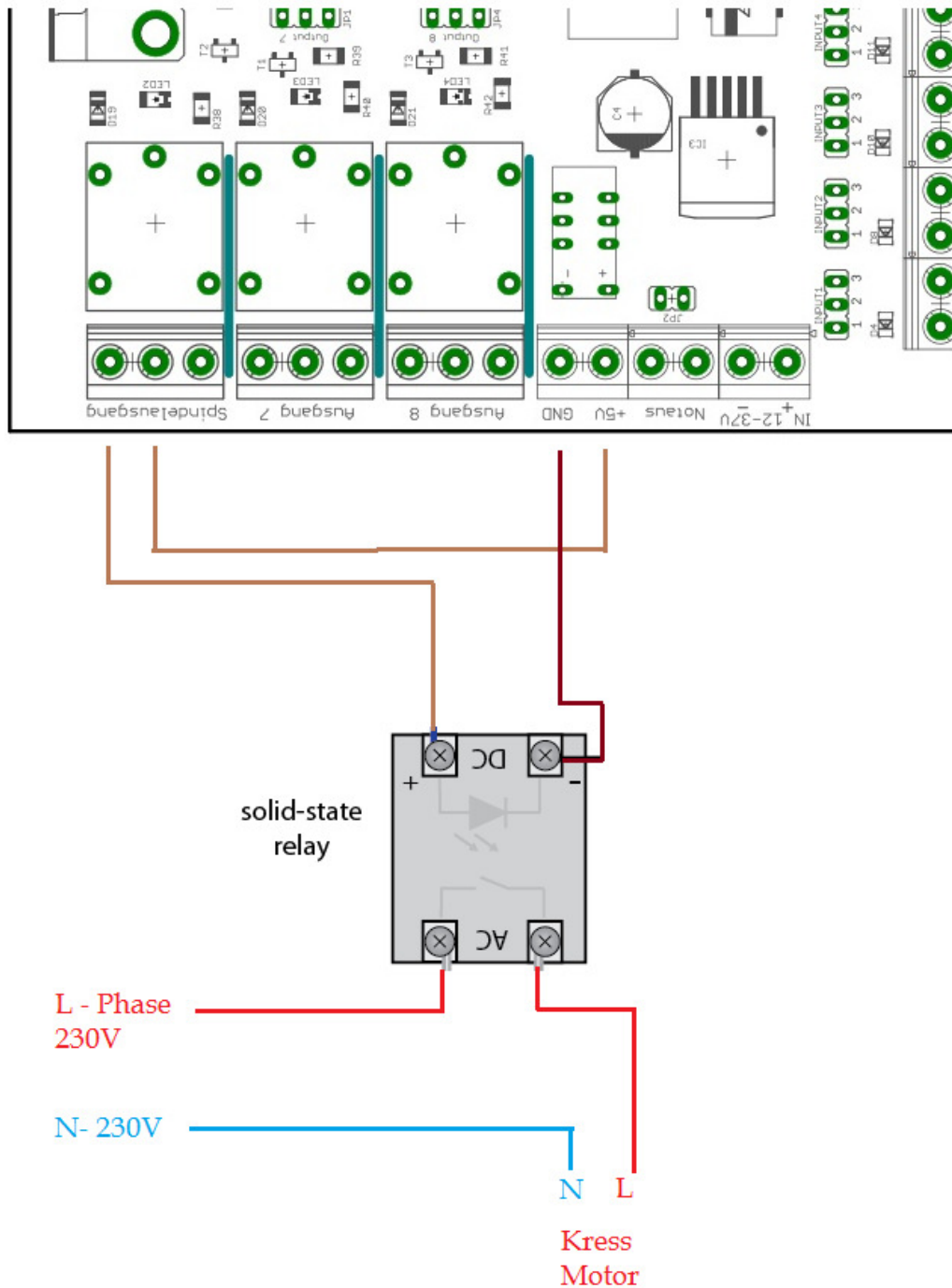
The potentiometer R13 is set to convert at 5V PWM (which the output of the Arduino provides) to a 10V analogue signal.

simple variant for the connection of a spindle motor

Safe variant for connecting a spindle motor

solid-state
relay

L - Phase
230V
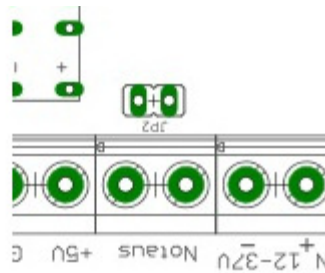
N- 230V

N   L

Kress
Motor

Emergency Button

the external emergency stop is connected as an opener and switches off all signals on the breakout board after pressing. One can define an input as error input in ESTLCAM then stop also ESTLCAM.
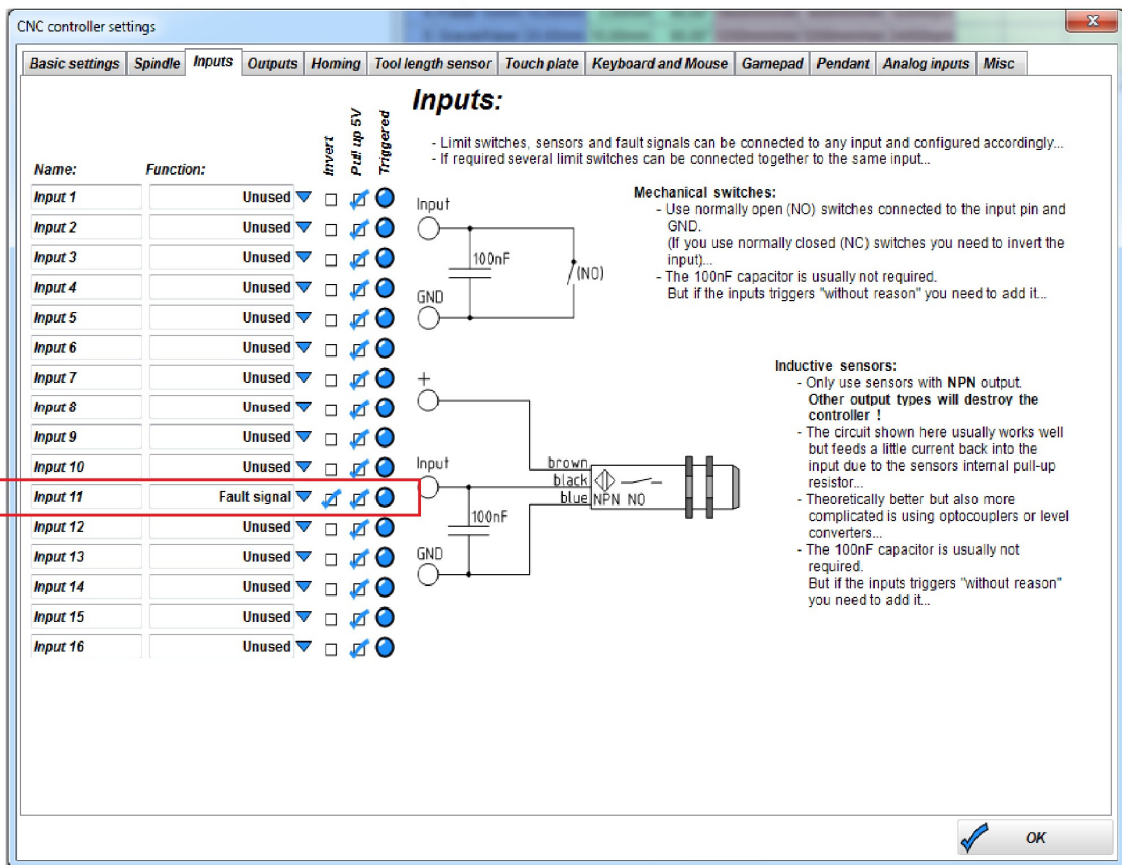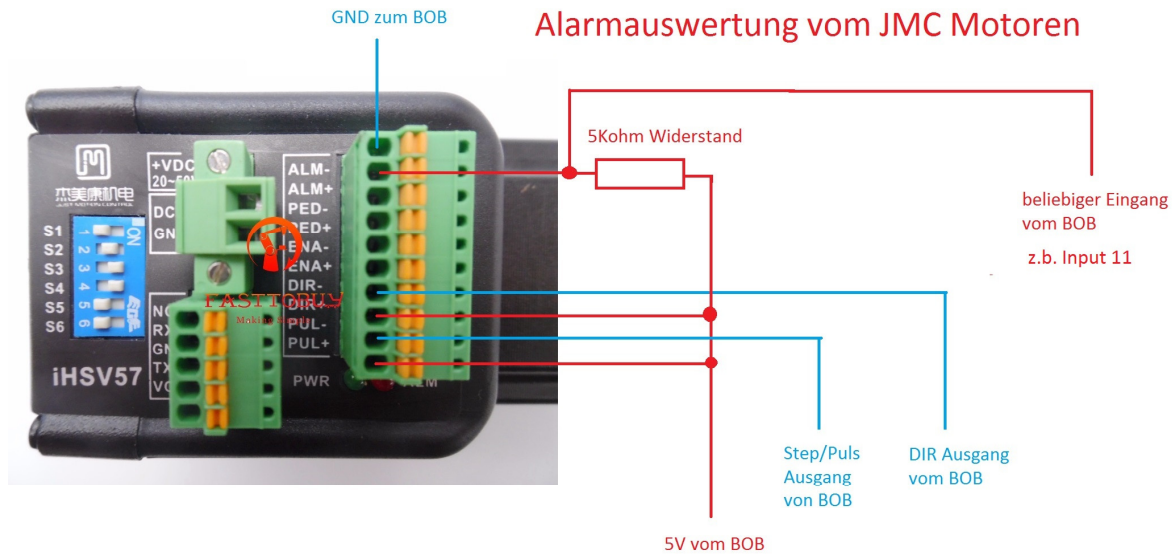
If jumper JP2 is closed, the emergency stop is ignored.
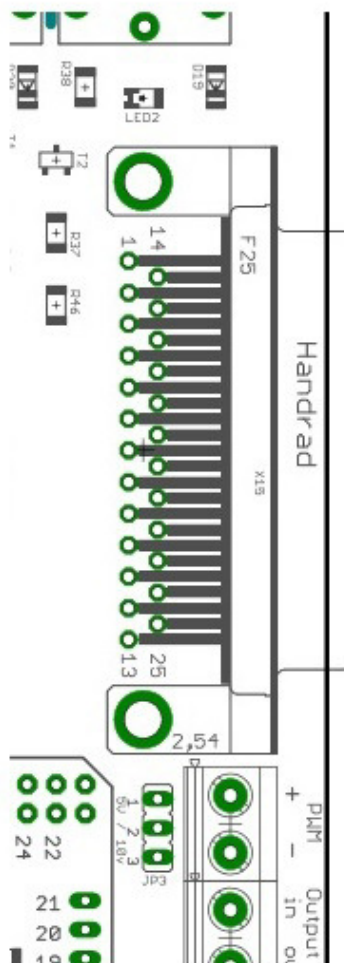
Which is set in basic attitude so.

Notaus als Öffner

Failure Settings for JMC Motors

GND zum BOB

Alarmauswertung vom JMC Motoren

5Kohm Widerstand

beliebiger Eingang vom BOB

z.b. Input 11

Step/Puls Ausgang von BOB

DIR Ausgang vom BOB

5V vom BOB

Jogwheel

Das Handrad wird über die Sub-D
Buchse angeschloßen

Pin1 - Encoder A
Pin2 - Encoder B
Pin3 - Speed1
Pin4 - Speed2
Pin5 - Speed3
Pin6 - Speed4
Pin7- Speed5
Pin8 - Speed6
Pin9 - OK
Pin10 - Spindel Stop
Pin11 - Spindel Start
Pin12 - Programm Stop
Pin13 - Programm Start
Pin14 - Achse Z
Pin15 - Achse Y
Pin16 - Achse X
Pin17 - LED X
Pin18 - LED Y
Pin19 - LED Z
Pin20 - +5V
Pin21 - Gnd
Pin22 - Gnd für LED mit Vorwiderstand
Pin23 - frei
Pin24 - Vorschub
Pin25 - Drehzahl