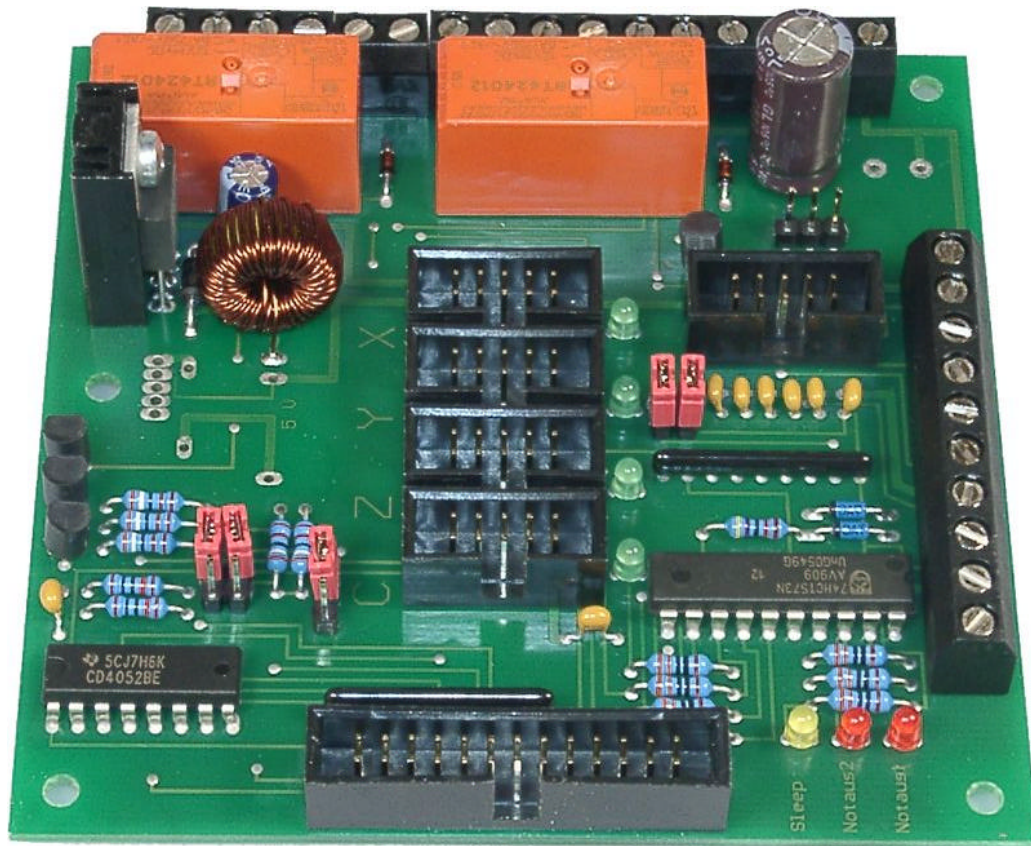


# Steppermotor Parallel Port Interface kit



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**Relays:**

With the relays on the interface card it is possible to switch external devices from software. For example vacuum cleaner, cooling, lamp etc. Each relay has 2 contacts, which have a rated 8A per contact. It is possible to let the relays work in parallel to increase the loading. To couple the relays to one switching signal from the software engage the JP 2 jumper. The relays are turned off directly when the emergency stop is pressed.

**Three versions of the kit:****Interface card**

In this case the 5V, 12V and ground needs to be supplied to the card from an external source. The motor voltage pin 1 remains unconnected.

**Interface card 0/12**

On this version there is a 12V voltage regulator. This regulator is supplied with the motor voltage pin (24V 65V). The 12V powers the relays and allow a fan to be connected to JP 3. The 5V still needs to be supplied from an external source.

**Interface card 5/12**

On this version there is a 12V and 5V regulator. The specs are the same as the 0/12 except that the 5V is now also supplied directly from the board. The 12V and 5V lines can supply a max of 1A.

**Signals on the LPT port and flat band cable:**

<b>Pin</b>	<b>Flat band cable</b>	<b>LPT port Function</b>
1	Spindle	Spindle
2	Cooling	Direction X
3	Direction X	Step X
4	Limit C	Direction Y
5	Step X	Step Y
6	Boost	Direction Z
7	Direction Y	Step Z
8	Sleep	Direction C
9	Step Y	Step C
10	Ground	Limit Z
11	Direction Z	Emergency Stop
12	Ground	Limit Y
13	Step Z	Limit X
14	Ground	Cooling
15	Direction C	Limit C
16	Ground	Boost
17	Step C	Sleep
18	Ground	Ground
19	Limit Z	Ground
20	Ground	Ground
21	Emergency Stop	Ground
22	Ground	Ground
23	Limit Y	Ground
24	Ground	Ground
25	Limit X	Ground
26	+5V	Doesn't exist

Sleep = Current reduction in rest mode, if initiated from software

Boost = Over current during acceleration, if initiated from software

Jumper	Function															
<b>JP1:</b>	Allows the relays 1 and 2 to be coupled to one signal. The signal corresponding to relay 1. In that way the signal for relay 2 can be used for other purposes.															
<b>JP2:</b>	Allows axis to be coupled to each other. <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>1</th> <th>2</th> <th></th> </tr> </thead> <tbody> <tr> <td>open</td> <td>open</td> <td>All axis independent</td> </tr> <tr> <td>closed</td> <td>open</td> <td>C coupled to Z</td> </tr> <tr> <td>open</td> <td>closed</td> <td>C coupled to Y</td> </tr> <tr> <td>closed</td> <td>closed</td> <td>C coupled to X</td> </tr> </tbody> </table>	1	2		open	open	All axis independent	closed	open	C coupled to Z	open	closed	C coupled to Y	closed	closed	C coupled to X
1	2															
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<b>JP3:</b>	Possibility to connect a fan															
<b>JP4:</b>	Emergency stop disable. If one of the emergency stop connection is not utilized it should be disabled to prevent software problems. <table border="1" style="width: 100%; border-collapse: collapse;"> <tbody> <tr> <td>1 closed = Emergency stop 1 (10 pole connector S pin 9) not utilized</td> </tr> <tr> <td>2 closed = Emergency stop 2 (Screw connector) not utilized</td> </tr> </tbody> </table>	1 closed = Emergency stop 1 (10 pole connector S pin 9) not utilized	2 closed = Emergency stop 2 (Screw connector) not utilized													
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## Emergency Stop Switch

The interface kit allows the possibility to connect two separate emergency stop switches. For example, one emergency stop on the machine and another on the driver module. The connection that isn't utilized should be disabled using JP4. On one emergency stop connection several switches can be connected in series. The switch in normal condition connects the emergency stop pin to ground. In normal condition the switch is closed. When triggered it is open. When the emergency stop is triggered the power to the drives is cut of

Emergency stop 1      pin 10 to pin 9 (Screw terminals)  
Emergency stop 2      pin 9 to pin 8 (ST6)

## LED's:

**4 Green leds:** Show the condition of the limit switch of the corresponding axis. If the led is on the switch is open or not connected. If the led is off the switch is closed connected to ground.

**2 Red leds:** The red leds indicate the condition of the emergency stop switches. The principle is the same as for the green leds. In normal conditions these leds should be off. If they are on the power to the drivers is disconnected.

**The yellow led:** Indicates the condition of the sleep signal. Dependent on the driver used the signal should be on or off. The 4A and 2A drivers require the led to be on with running motors. (Software settings sleep active high or low). If the motors run with sleep active they will have much less power and torque!

### **Limit switch connection using ST6:**

When using the ST6 10 pole connection for the limit switches.

<b>Axis</b>	<b>Which pins?</b>
Limit X	Pin 1 against Ground pin 8
Limit Y	Pin 3 against Ground pin 8
Limit Z	Pin 5 against Ground pin 8
Limit C	Pin 7 against Ground pin 8

Remember that the switches should be normally closed, especially of importance when connection multiple switches in series.

### **Limit switch connection using screw terminals:**

Instead of using the 10 pole connector it is also possible to use the screw terminals.

<b>Axis</b>	<b>Which pins?</b>
Limit X	Terminal 2 against Ground pin 1
Limit Y	Terminal 4 against Ground pin 3
Limit Z	Terminal 6 against Ground pin 5
Limit C	Terminal 8 against Ground pin 7