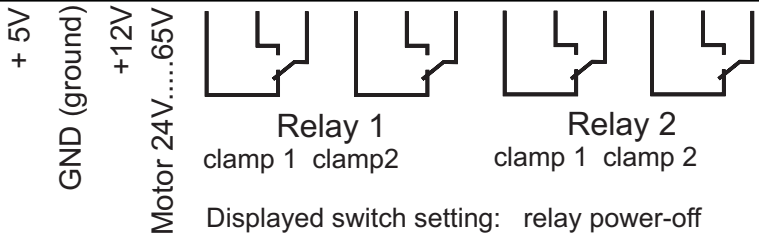
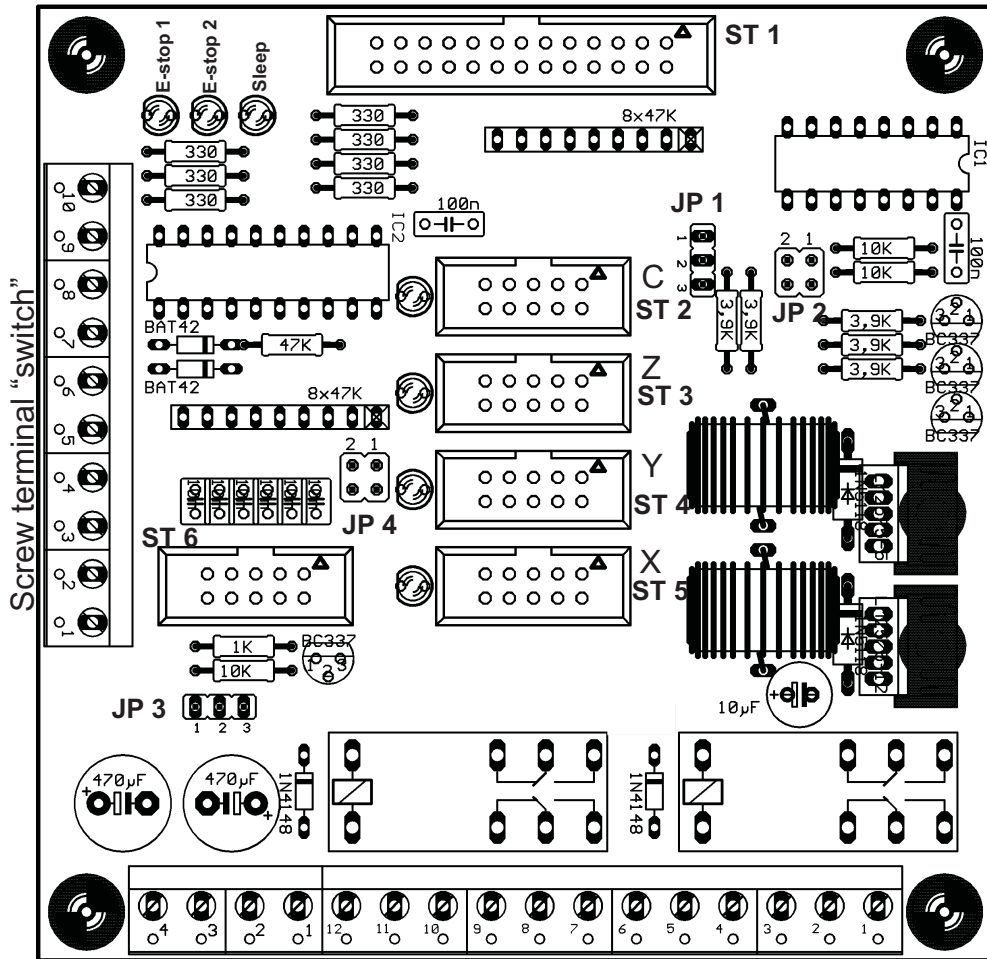




# Stepper motor parallel port interface card

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Input PC or  
optocoupler card



## Jumper specifications

### JP 1

JP 1 routes switch-signals of relays 1 and 2 through one signal line into relay 1. The other line can be used for other purposes.

**JP 1 and 2:relay switch at once.**

**JP 2 and 3:relay switch individually.**

### Jp 2

In order to run 2 motors on one axis, run the C-axis can along with another axis by setting JP 2.

<b>1</b>	<b>2</b>	
<b>off</b>	<b>off</b>	<b>All axes operated separately</b>
<b>set</b>	<b>off</b>	<b>C runs with Z</b>
<b>off</b>	<b>set</b>	<b>C runs with Y</b>
<b>set</b>	<b>set</b>	<b>C runs with X</b>

### Jp 4

Disables emergency-stop function when the connector is not in use. This is due to the fact that a disconnected E-stop switch functions like an activated E-stop switch.

**1 set = E-stop 1(pin 9 of 10-pin plug "S") is not in use**

**2 set = E-stop 2(Screw terminal "switch", clamp 10 ) is not in use**

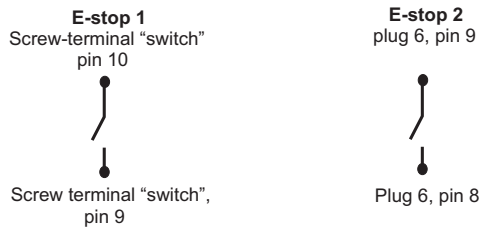
## Emergency-stop switch

Two individual E-stop switches can be connected to the interface card. In case of one switch being assembled inside the machine and another one outside on the cover, wiring will be easier using two individual connectors. The connector which is not in use must be switched off by appropriate setting of JP 4.

Any number of switches can be connected to one emergency-stop connector. Then all switches can be connected in series.

In normal operating mode the pin is connected to GND(ground) by the switch.

The switch is a break-contact-element and is normally connected. When activating an emergency-stop switch, the drivers are immediately cut from power-supply and the relay - depending on the setting - can be switched off. Additionally, a signal is sent to the software.



## LED

The 4 green LED's near the 10-pin driver connector indicate the setting of each reference switch. A lighted LED indicates that the switch is disconnected. A dark LED indicates that the switch is connected to GND(ground).

The two red LED's indicate the E-stop switch connector settings. A lighted LED indicates that the switch is connected.

A disconnected E-stop switch requires appropriate setting of JP 4.

Besides, single/both lighted LED indicates motor power-off. The LED must not be lighted in normal operating mode.

The yellow LED indicates the setting of the sleep signal(Current lowering during stand-by).

While operating the motor:

- using a HP Step driver, the LED must not be lighted.
- using a 2A Bipolar driver, the LED must be lighted.

(For program settings refer to the program manual Sleep Active Low Or High). Drivers with automatic Sleep-function,

e.g. HP 5056 or HP 8078, do not require a Sleep LED check.

The motor lacks power when running with Sleep mode activated.

## Reference switch connectors ST 6

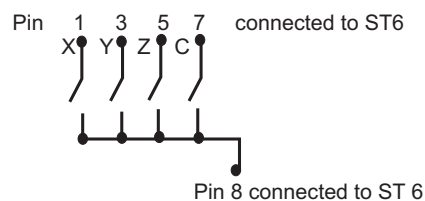
The reference-switches must be connected to plug ST 6 as follows:

Reference X pin 1 to GND pin 8

Reference Y pin 3 to GND pin 8

Reference Z pin 5 to GND pin 8

Reference C pin 7 to GND pin 8



## Reference switch connectors on the screw terminal “switch”

Instead of connecting the reference switches to plug(ST), they can be connected to the screw terminal “switch”. For each axis, the reference switch can be connected to the terminal **or** to ST 6.

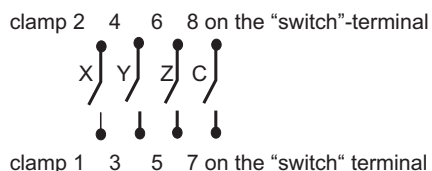
Refer to the pin assignment:

Reference X of clamp 2 connected to GND clamp 1 of the “switch”

Reference Y of clamp 4 connected to GND clamp 3 of the “switch”

Reference Z of clamp 6 connected to GND clamp 5 of the “switch”

Reference C of clamp 8 connected to GND clamp 7 of the “switch”



## Driver connector

The driver is linked to the interface card by the plugs ST2..... ST5.  
For pin assignment, refer to the following table.

Pin assignment for 10 pin plug	
Signal	Pin
GND	9 + 10
Sleep	6
Enable	5
Clock	2
Dir	4
+ 5V	7 + 8
NC	1 + 3

## Relay

Interface cards equipped with relays enable software-controlled switching of external devices. (e.g. exhaust, coolant access lamp)  
Each relay has two 8A directional contacts which enable switching the load double-pole or to switch both contacts parallel in order to boost power.  
JP 2 enables to send 1 control signal into 2 relays, which in turn makes available four 8A directional contacts.  
When activating emergency-stop, relays are switched off.

## Card power supply

There are three types of interface cards with variable power supply available.

### Interface card (order no. 10525)

Power supply connected to screw-terminal "Feed-in":  
For drivers: 5V, for relay: 12V.  
Power-supply minus must be connected to clamp GND.  
Clamp 1 of the motor voltage remains disconnected.  
Clamp 3(GND) must be connected to power-supply.

### Interface card 0/12 (order no. 10526)

This type features a volt-meter, by which the 24....65V of the motor are transformed into 12V(max. 1 Amp) for relays and possibly the fan. Clamps 1 and 2 of screw-terminal "Feed-in" are loaded with 12 V.  
5V must be supplied to clamp 4. Clamp 3(GND) must be connected to power supply.

### Interface card 5/12 (order no. 10527)

This type features a voltage regulator, by which the 24....65V of the motor are transformed into 12V for the relays (and possibly fans) and into 5V for the logic and drivers on the interface card. The maximum current beyond transformation is 1 Amp.

## Signals on flat cable

26 pin Flat cable	Signal	Output direction Stepping motor card
1	Spindle	Output
2	Cooler	Output
3	Dir X	Output
4	End C	Output
5	Clock X	Output
6	Boost	Output
7	Dir Y	Output
8	Sleep	Output
9	Clock Y	Output
10	Gnd	Output
11	Dir Z	Output
12	Gnd	Output
13	Clock Z	Output
14	Gnd	Output
15	Dir C	Output
16	Gnd	Output
17	Clock C	Output
18	Gnd	Output
19	End Z	Output
20	Gnd	Output
21	E-stop switch	Input
22	Gnd	Output
23	End Y	Input
24	Gnd	Output
25	End X	Input
26	+5V	Not connected

Dir = Direction

Clock = step pulse

Sleep = lowering current during stand-by (if supported by the software)

Boost = lifting current during motor start-up (if supported by the software)

End = end-switch / reference-switch