CS LAB s.c.
ElectronicLaboratory

user * guide * manual

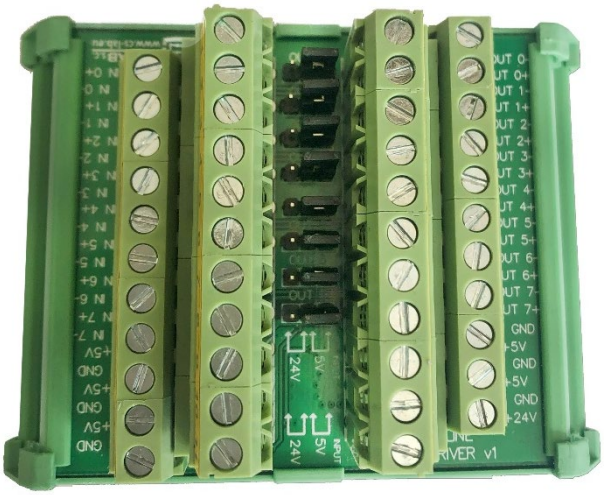
LINE DRIVER

Universal converter of TTL, OC digital signals to differential TTL signals

1. General

Line driver is an Open Collector (5V and 24V), Push Pull (5V and 24V) and High-Transistor Logic (24V) digital signals converter to differential signals (line drive type).

The device is mostly used for retrofitting of machines that have encoders or linear scales with OC, PP HTL output and a main controller requires differential signal.



Line Driver can be useful for devices not related to measurement systems as sometimes it is necessary to send fast 5V or 24V digital signals over long distance in a high-interference environment.

In CS-Lab's offer you will also find a Line Receiver - a system that has exactly opposite functions. Its main assumption is to change differential signal to TTL (5V) or OC signal (GND control).

Matching both systems (Line Driver + Line Receiver) you can send 5V or 24V signals over long distances using differential signal which is highly resistant to interference.

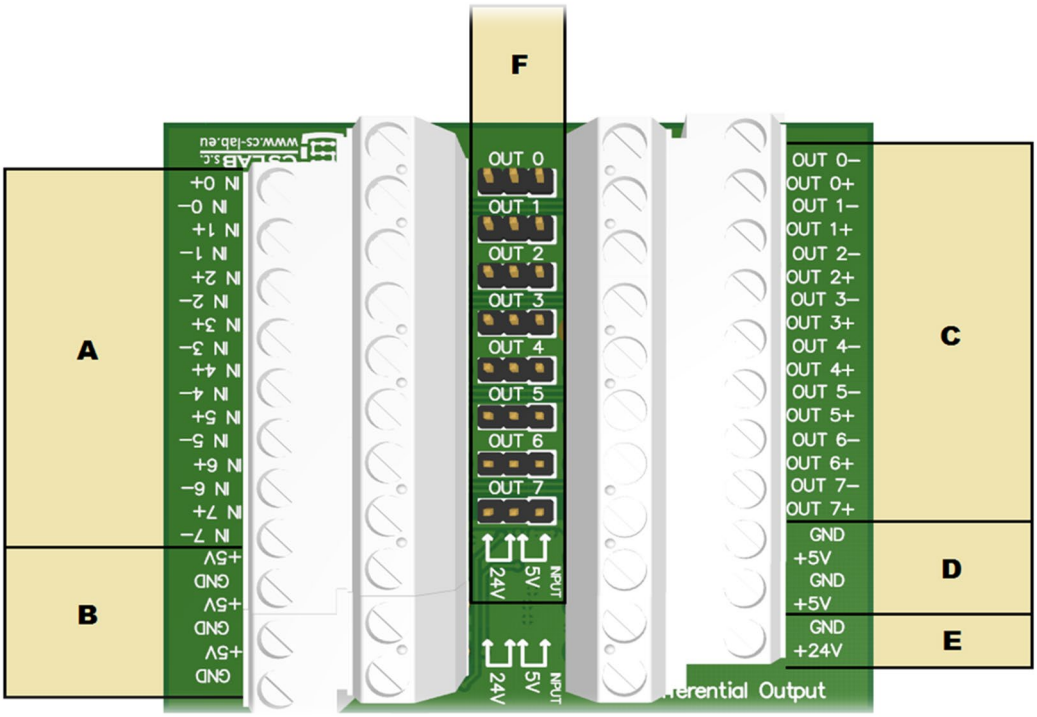
2. System parameters

INDEPENDENT CHANNELS NUMBER:	**8**
VOLTAGE:	**12V – 24V DC**
MIN. CURRENT CONSUMED:	**15mA (24V)**
MAX. CURRENT CONSUMED:	**200mA (24V)**
MAX. FREQUENCY:	**6MHz**
MAX. LOAD OF 5V LINE:	**500mA (multifuse type protection)**
MAX. CURRENT OF DIFFERENTIAL OUTPUTS:	**20mA**
DIGITAL INPUTS CURRENT:	**10mA for 24V for 16mA for 5V**

Line Driver's digital inputs were built basing on a fast optocoupler HCPL063 and an output system basing on DS26LS31 differential line transmitter. Moreover, a Line Driver was equipped with jumpers for selection of voltage for digital inputs. There is 5V and 24V.

The great advantage of the system are 5V power outputs, which can be used for encoders or linear scales power supplying. 5V power line was equipped with a 500mA fuse - it is a reusable non-replaceable fuse (Multifuse).

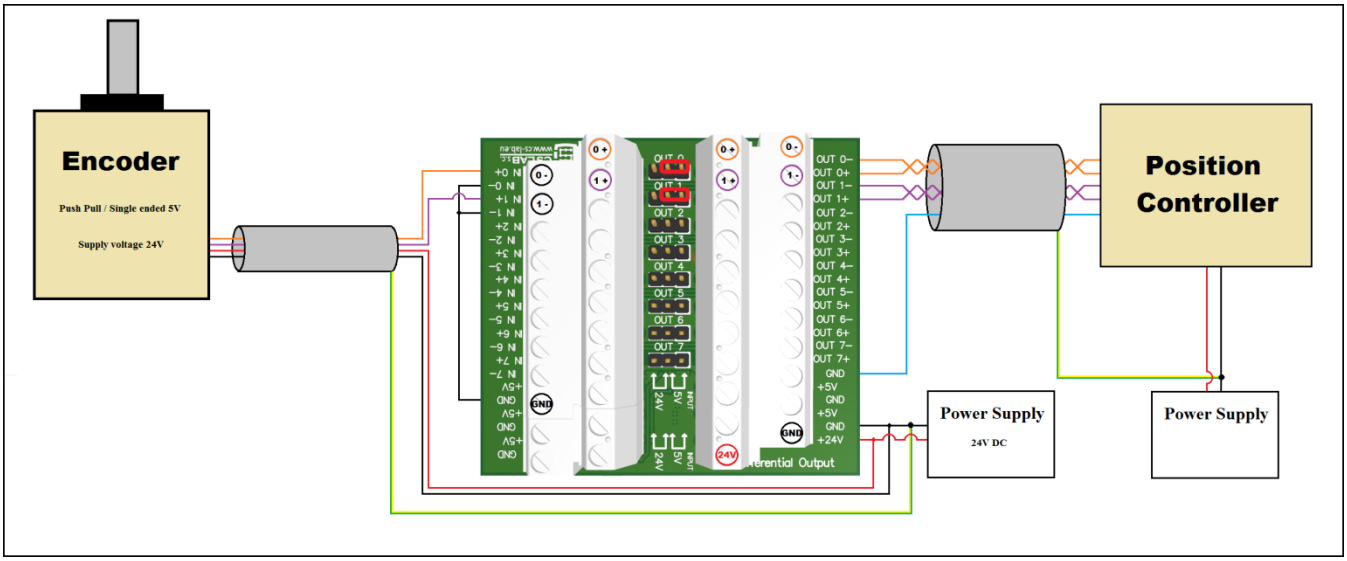
A differential output and GND, +5V or 24V shorting may cause its permanent damage.



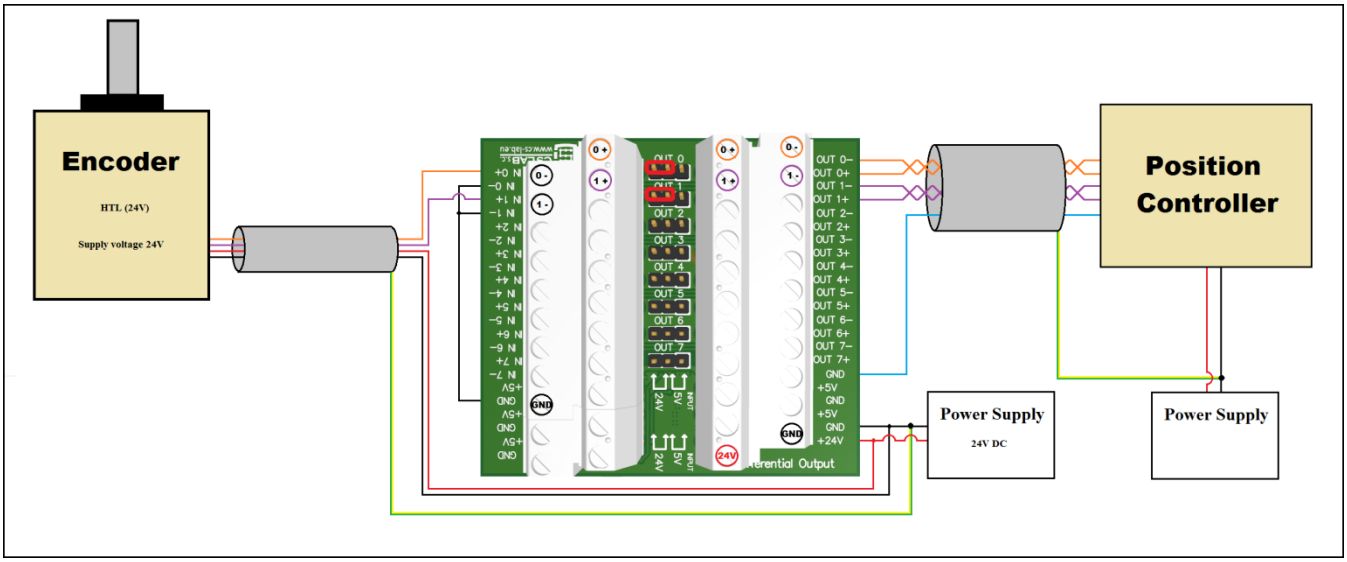
Drawing 1: Line driver - description

A. Digital inputs ("+" is optocoupler's anode and "-" is cathode).
B. 5V power output of an encoder or linear scale (max. load is 500mA).
C. Differential outputs.
D. 5V power output - go to point B.
E. 24V power input of the device.
F. Jumpers for selection of voltage for channel's digital inputs.

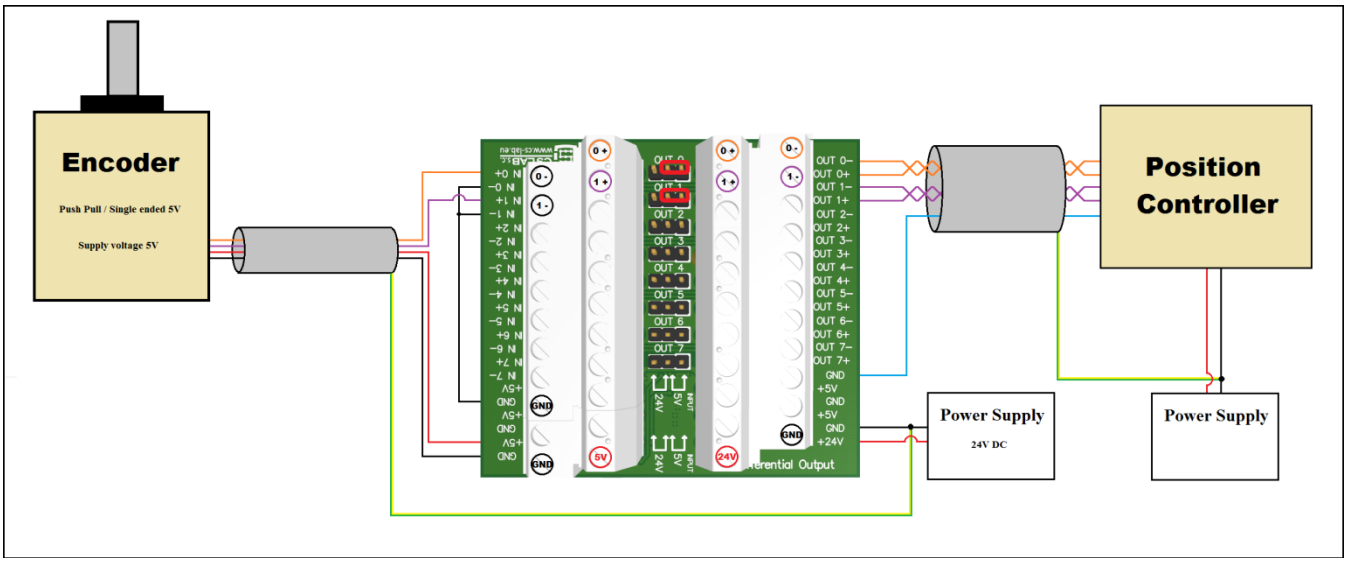
3. Sample connection schemes



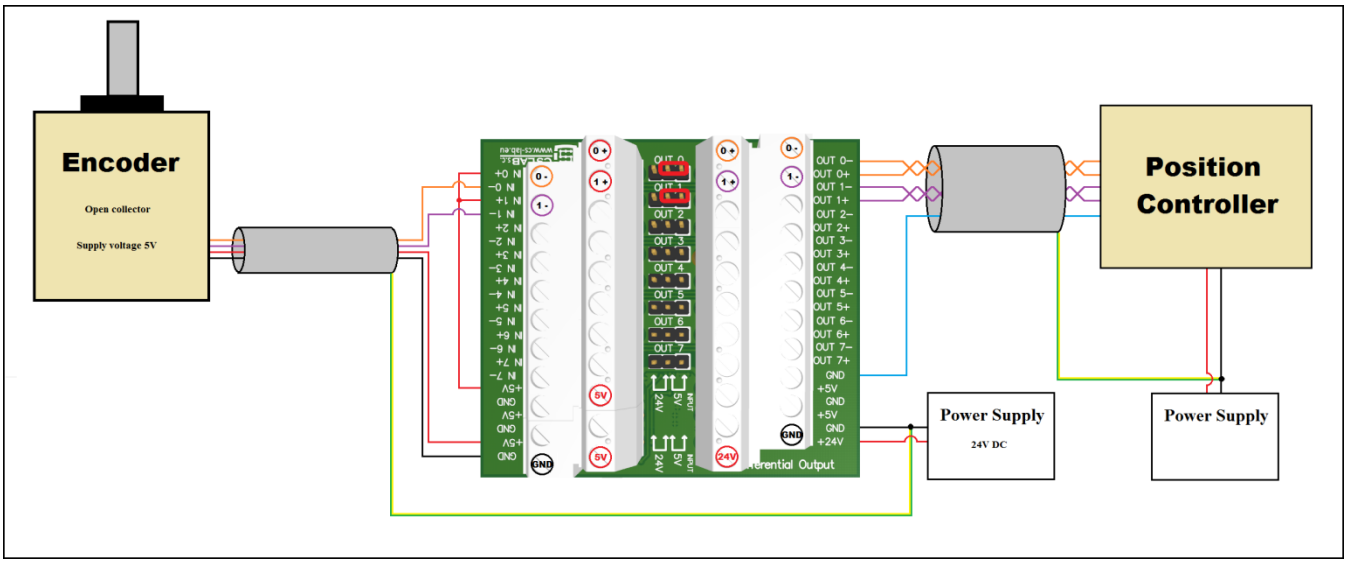
Drawing 2. Encoder 24V PP-SE



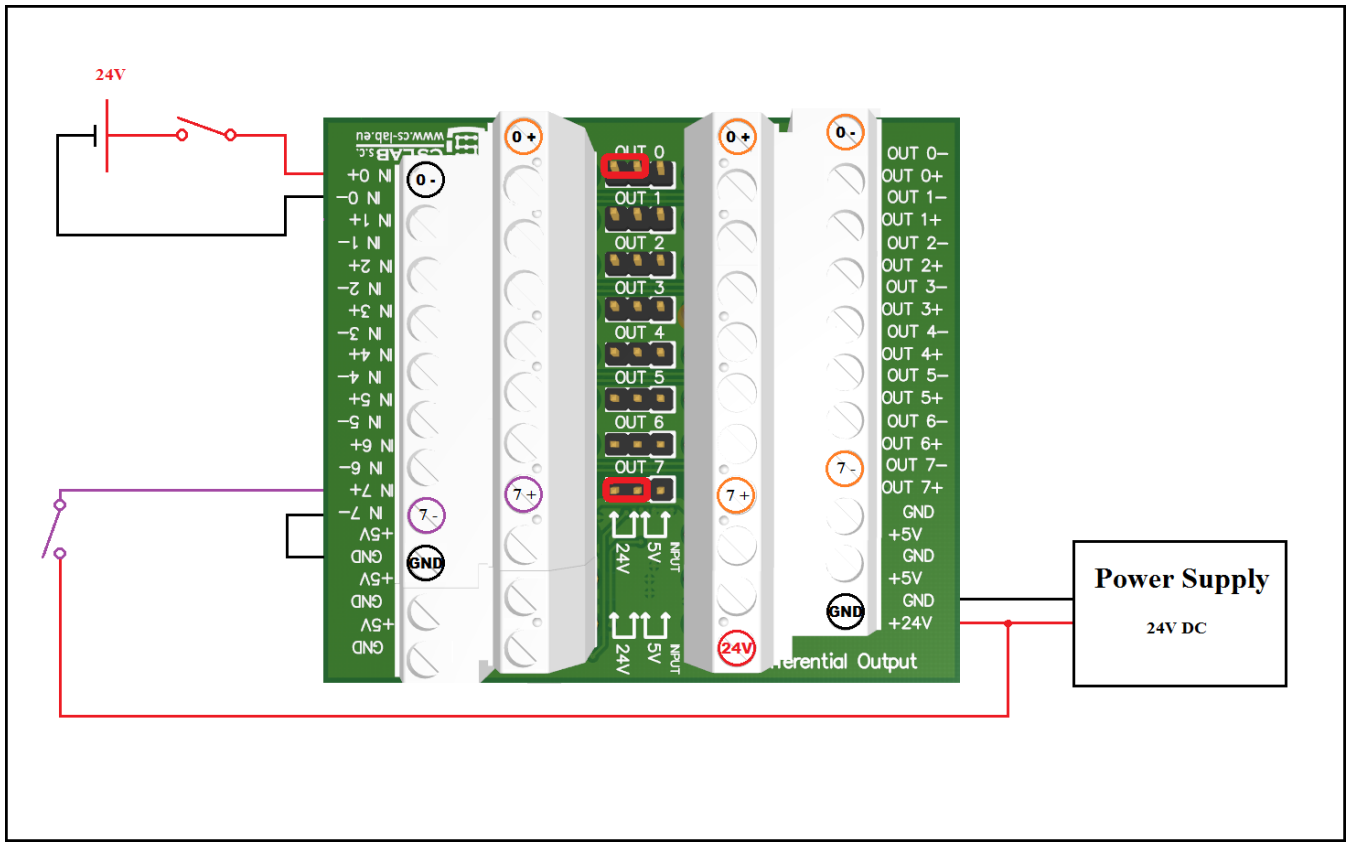
Drawing 3: 24V HTL



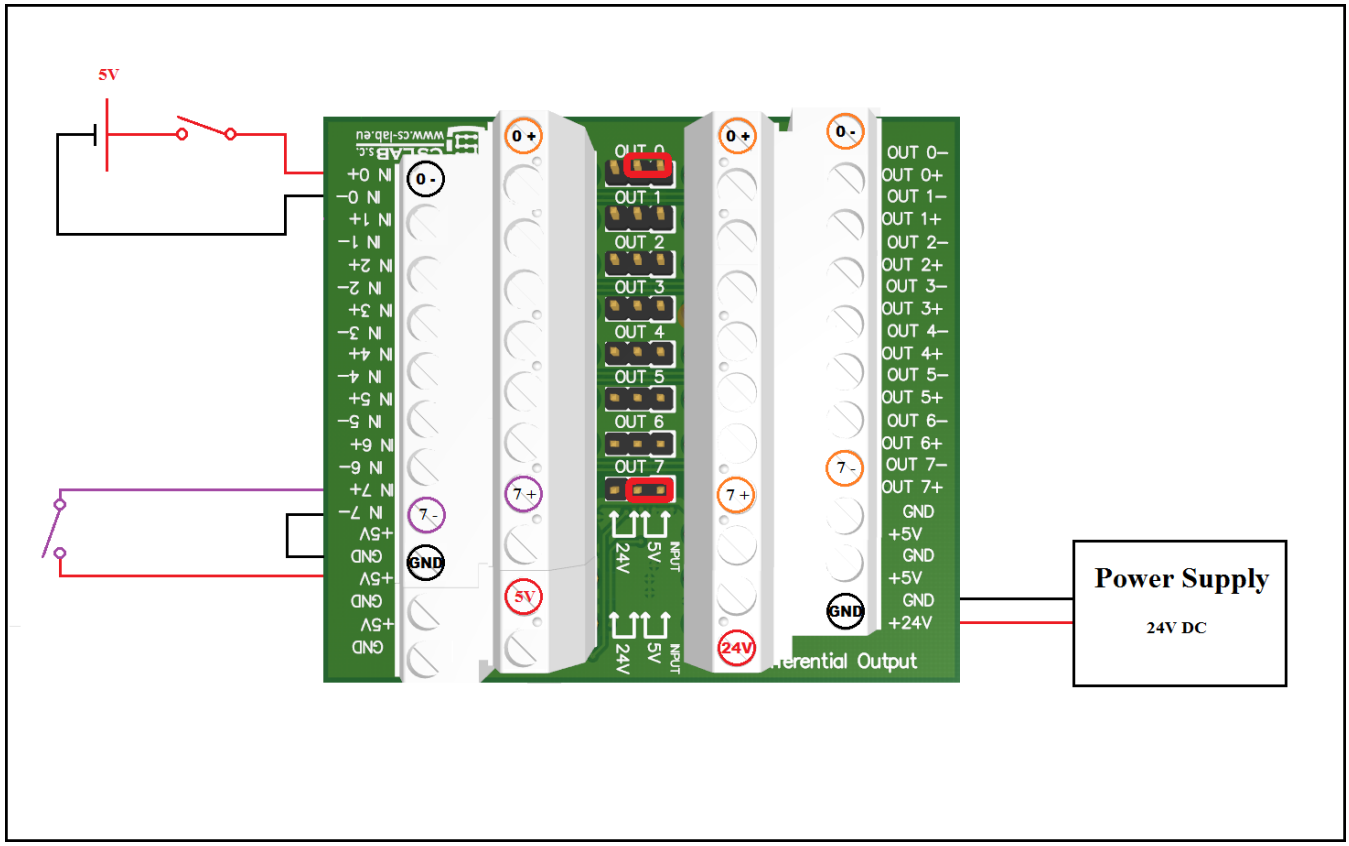
Drawing 4: 5V PP-SE



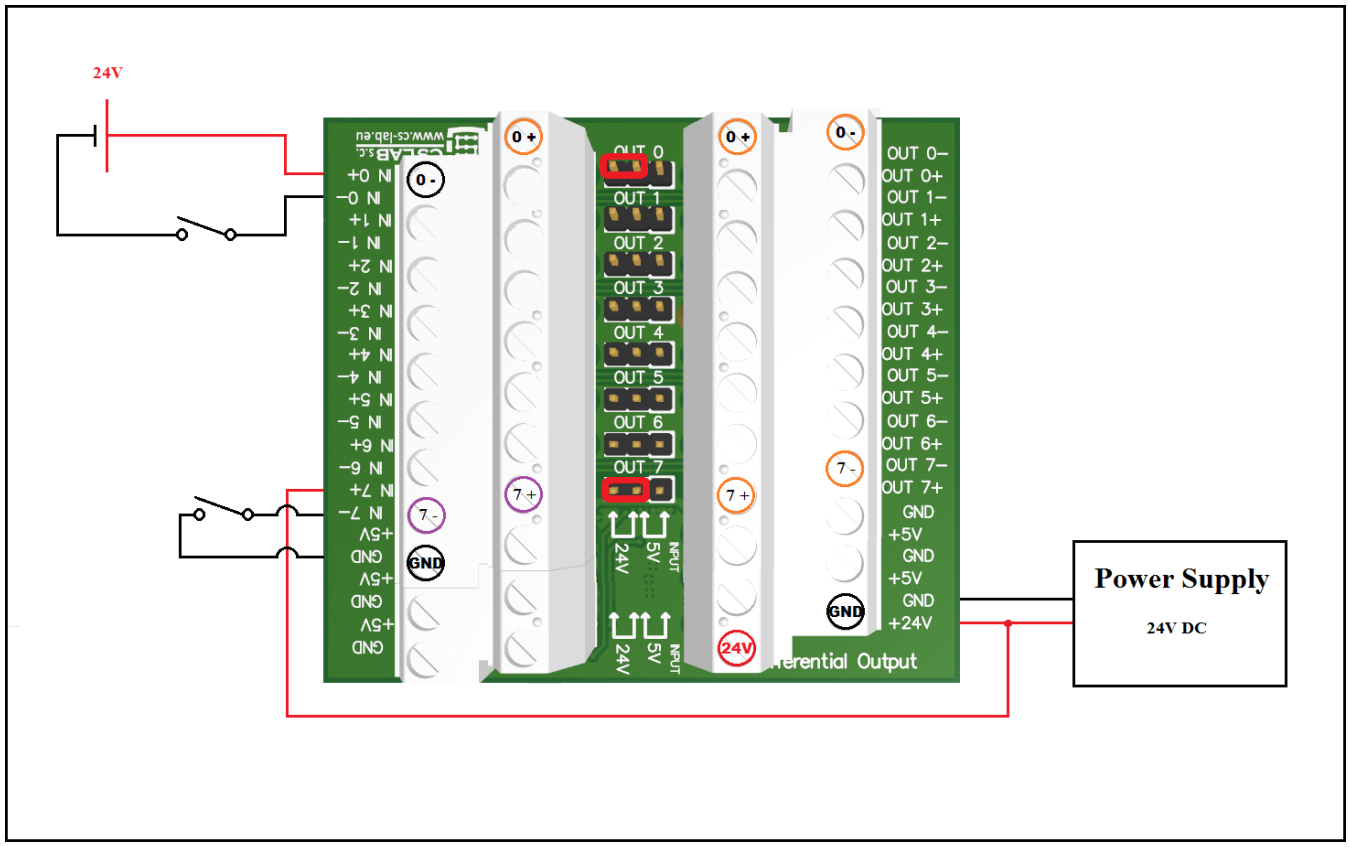
Drawing 5: 5V OC



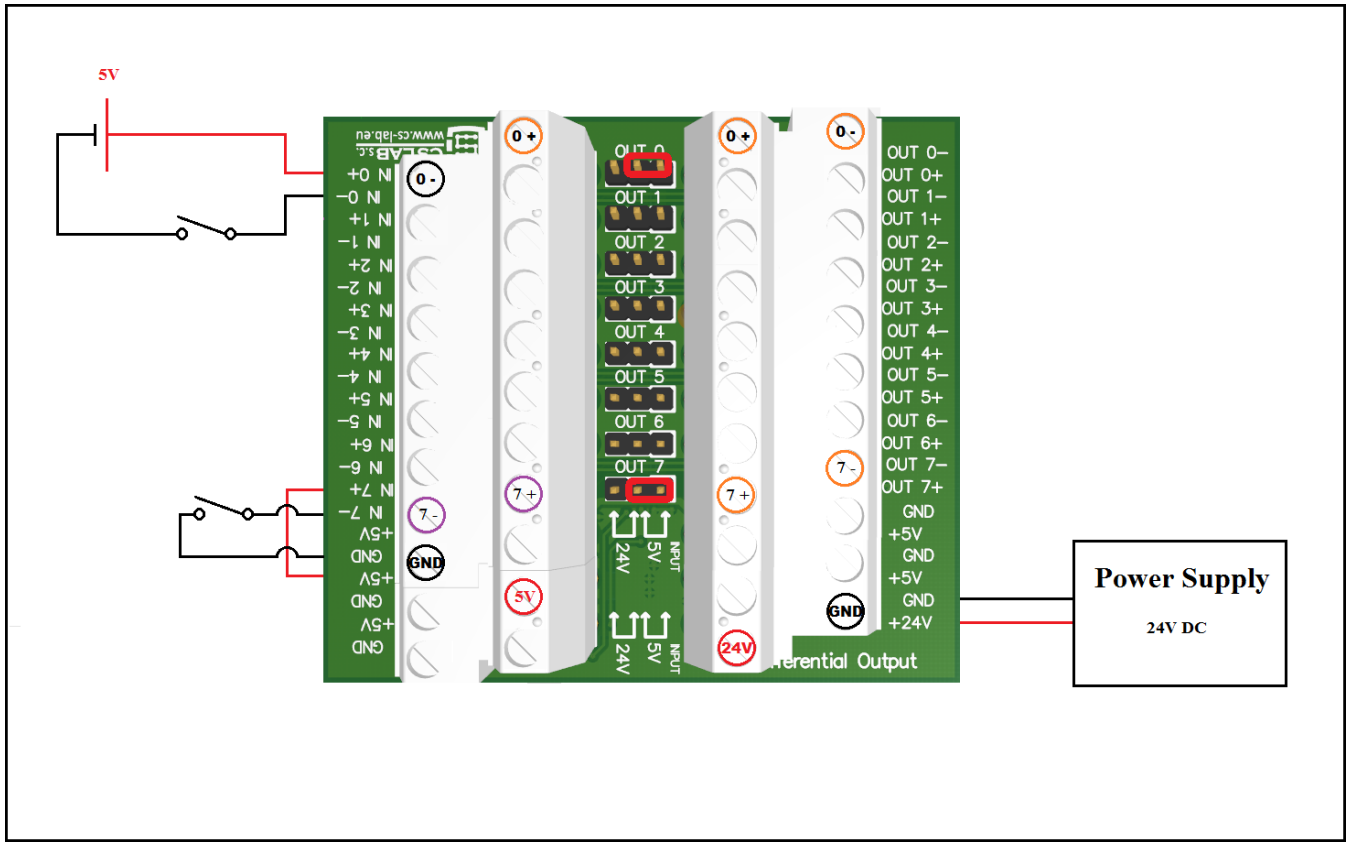
Drawing 6: 24V plus control



Drawing 7: 5V plus control



Drawing 8: 24V gnd control



Drawing 9: 5V gnd control