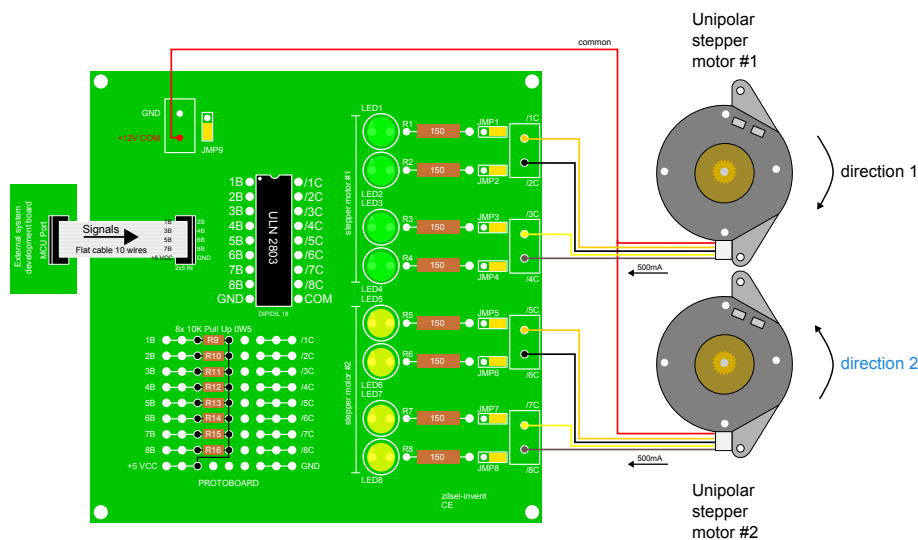


ULN 2803

2x unipolar stepper motor driver

Control Signals

hardware and software solutions
dream your robots



Configuration / Connection with microcontroller

ULN2803 TTL / 5V CMOS
2xUnipolar stepper motors (4+1 wires)+12V

Wires connection:

Red motor wire (common) is connected to COM, control wires (coils) are connected to screw connector.

Jumpers configuration JMP1 - JMP4:

Green LED matrix active: NO
Unipolar stepper motor #1 active: YES

Jumpers configuration JMP5 - JMP8:

Yellow LED matrix active: NO
Unipolar stepper motor #2 active: YES

Connection

2x5 pin head male, flat cable 10 wires.

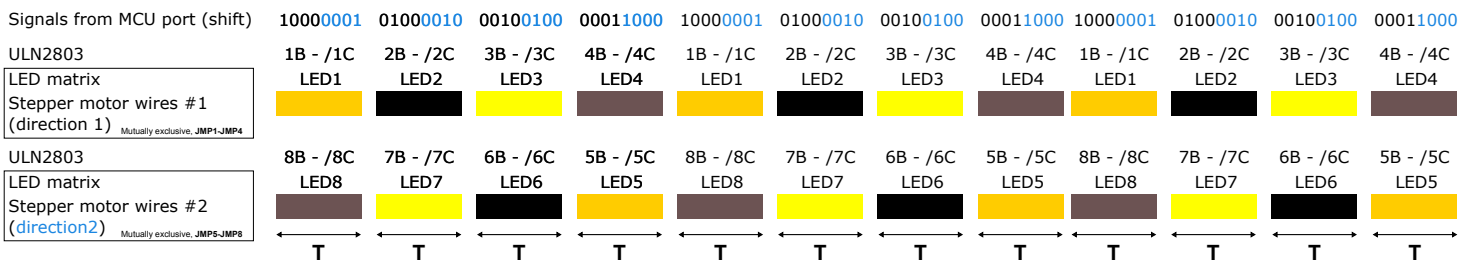
8x Pull Up 10K resistors

Use the prototype panel to add 8 additional resistors for each of the eight Darlington transistor channels.

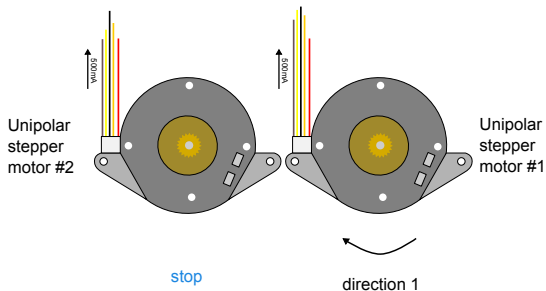
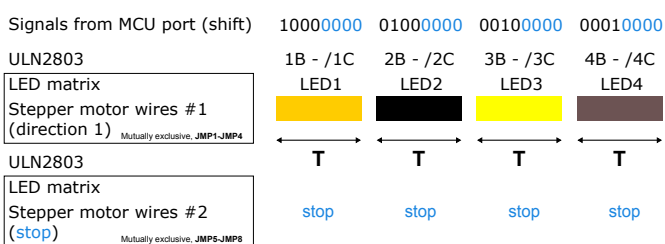
Application:

Programmable autonomous vehicles with differential movement.

Signals in time / 2x Stepper motors active



Signals in time / 1x Stepper motor active



Signal duration / Propagation time delay

The minimum duration of the signal **T**, depends on the speed of signal propagation through the integrated circuit. For propagation time delay please consult the ULN2xxx/BA12xxx documentation.

Algorithm

Example: signal generation in time

1. MCU timer configuration, timer value $\geq T$.
2. Initialize the shift register to the desired value.
3. Set shift register value to MCU port (connected with ULN2803).
4. Start timer.
5. After a timeout (timer interrupt), execute next shift operation of the shift register.
6. Go to step #3.

Remark: timer configuration depends on MCU platform, for more details please consult MCU specification.

Remarks: The examples relate to the DC motors rated at 12V and $\leq 500mA$, LED and resistor values are calculated regarding TTL / 5V CMOS logic families.

Before using, be sure to consult the manufacturer's documentation/specification of DC motors / ULN2xxx / BA12xxx IC circuits.

MCU - microcontroller unit.
Logic 1 and 0 - TTL / 5V CMOS.