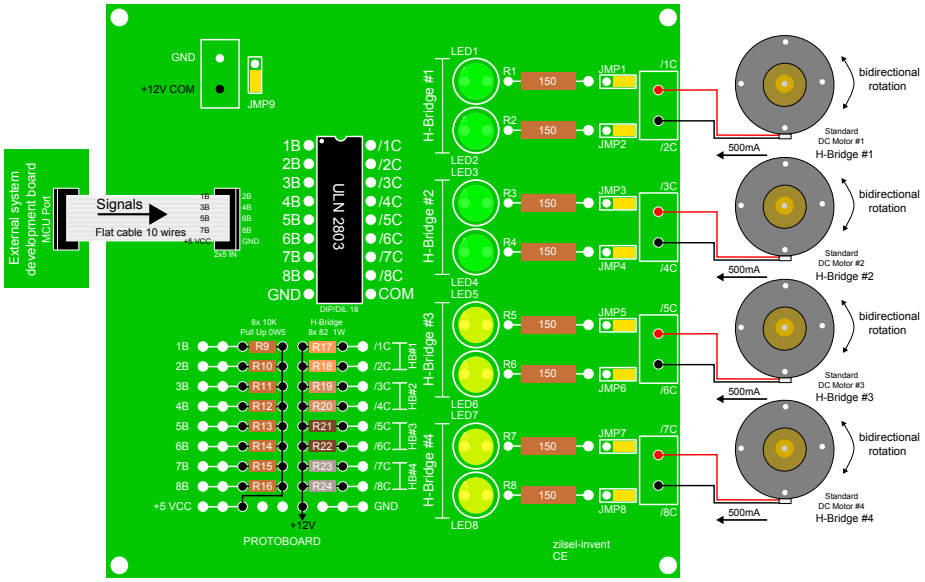
zilsel
invent®

hardware and software solutions
dream your robots

ULN 2803
4x H-Bridge
Standard DC Motor



Configuration / Connection with microcontroller

ULN2803 TTL / 5V CMOS
4xStandard DC motors (2 wires) +12V

Wires connection:
Wires are connected to screw connectors.

Jumpers configuration JMP1 - JMP4:
Green LED matrix active: NO
Standard DC motors #1, #2 active: YES

Jumpers configuration JMP5 - JMP8:
Yellow LED matrix active: NO
Standard DC motors #3, #4 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.

H-Bridge resistor
Use the prototype panel to add 8 additional resistors for each of the four H-Bridge channels.

H-Bridge #1

Standard DC motor #1

Wires are connected to screw connectors:
red wire /1C, black wire /2C.

H-Bridge resistors: R17 i R18.
R17 connected to /1C.
R18 connected to /2C.
The other end of each resistor is connected to 12V.

R17, R18 = 82, 1W

H-Bridge #2

Standard DC motor #2

Wires are connected to screw connectors:
red wire /3C, black wire /4C.

H-Bridge resistors: R19 i R20.
R19 connected to /3C.
R20 connected to /4C.
The other end of each resistor is connected to 12V.

R19, R20 = 82, 1W

H-Bridge #3

Standard DC motor #3

Wires are connected to screw connectors:
red wire /5C, black wire /6C.

H-Bridge resistors: R21 i R22.
R21 connected to /5C.
R22 connected to /6C.
The other end of each resistor is connected to 12V.

R21, R22 = 82, 1W

H-Bridge #4

Standard DC motor #4

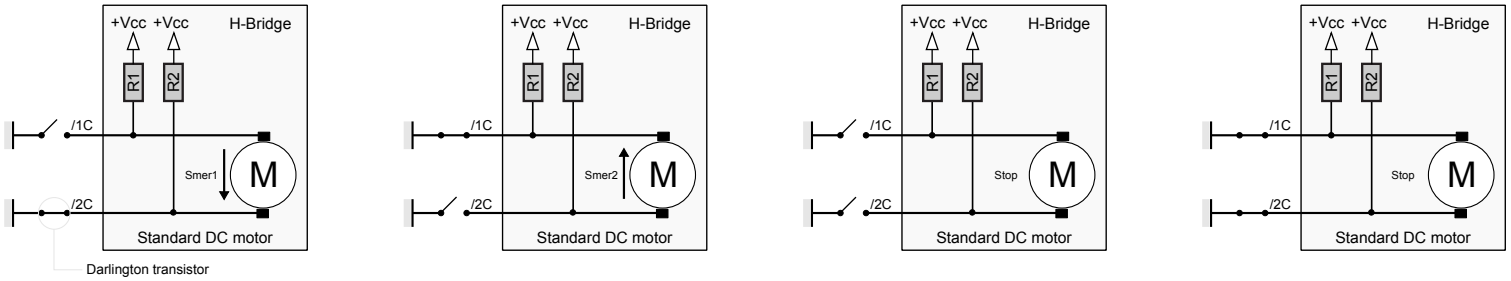
Wires are connected to screw connectors:
red wire /7C, black wire /8C.

H-Bridge resistors: R23 i R24.
R23 connected to /7C.
R24 connected to /8C.
The other end of each resistor is connected to 12V.

R23, R24 = 82, 1W

For additional information look at bellow pictures/examples.
Darlington transistor is presented as switch. Rotation direction is determined by state of the switches (Darlington transistors).
DC motor RPM depends on the speed of transistor switching. RPM is controlled by PWM signal generated by MCU.

H-Bridge conceptual scheme (/1C, /2C channels)



Remarks: The examples relate to the DC motors rated at 12V and <= 500mA,
LED and resistor values are calculated regarding TTL / 5V CMOS logic families / 12 V.
Before using, be sure to consult the manufacturer's documentation/specification of DC motors / ULN2xxx / BA12xxx IC circuits.

MCU - microcontroller unit.

zilsel-invent.com
v.savic@zilsel-invent.com