

Solenoid Drivers

The image shows two circuit diagrams for driving solenoids. Both use a ULN2003A driver chip, which is a monolithic 8-channel high-voltage Darlington transistor array.

Top Circuit: The ULN2003A (U1) is connected with its COM pin to +5V and its GND pin to ground. The input pins (I1-I8) are connected to a 74VHC04 inverter (U2). The output pins (O1-O8) are connected to solenoid coils S1-S8. The inverter's VCC is connected to +5V and its GND to ground.

Bottom Circuit: The ULN2003A (U2) is connected with its COM pin to +5V and its GND pin to ground. The input pins (I1-I8) are connected to solenoid coils S9-S14. The output pins (O1-O8) are connected to solenoid coils S1-S8. The inverter's VCC is connected to +5V and its GND to ground.

Solenoid Connector: A 28-pin connector (J2) is shown, with pins 1-14 connected to solenoid coils S1-S14 and pins 15-28 connected to solenoid coils S1-S14.

Pin Connections:

- U1 (ULN2003A): COM to +5V, GND to GND, I1-I8 to 74VHC04, O1-O8 to S1-S8.
- U2 (ULN2003A): COM to +5V, GND to GND, I1-I8 to S9-S14, O1-O8 to S1-S8.
- 74VHC04 (U2): VCC to +5V, GND to GND, I1-I8 to U1, O1-O8 to U1.
- J2 (Solenoid Connector): Pins 1-14 to S1-S14, Pins 15-28 to S1-S14.

Pin configuration diagram for the ATmega328P microcontroller. The diagram shows the 40 pins of the package and their functions. Power pins include Vcc (+5V), GND, and IOREF (+3.3V). Reset is pin 1. Analog pins (P0-P3) include A0-A15. Digital pins (P4-P7) include D0-D31. Functions include SCL, SDA, AREF, PWM, and various I/O pins. A note indicates that pins 1-4 are 'Holes'.

Pin	Function
1	Reset
2	IOREF (+3.3V)
3	Vcc (+5V)
4	Vcc (+5V)
5	Vcc (+5V)
6	Vcc (+5V)
7	Vcc (+5V)
8	Vcc (+5V)
9	Vcc (+5V)
10	Vcc (+5V)
11	Vcc (+5V)
12	Vcc (+5V)
13	Vcc (+5V)
14	Vcc (+5V)
15	Vcc (+5V)
16	Vcc (+5V)
17	Vcc (+5V)
18	Vcc (+5V)
19	Vcc (+5V)
20	Vcc (+5V)
21	Vcc (+5V)
22	Vcc (+5V)
23	Vcc (+5V)
24	Vcc (+5V)
25	Vcc (+5V)
26	Vcc (+5V)
27	Vcc (+5V)
28	Vcc (+5V)
29	Vcc (+5V)
30	Vcc (+5V)
31	Vcc (+5V)
32	Vcc (+5V)
33	Vcc (+5V)
34	Vcc (+5V)
35	Vcc (+5V)
36	Vcc (+5V)
37	Vcc (+5V)
38	Vcc (+5V)
39	Vcc (+5V)
40	Vcc (+5V)

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Id: 1/1