

Arduino Uno R3

Microcontrollers / 5 V logic

The classic 5 V board: pins, power and the three essential buses.

01 Pin map

Digital

D0-D13; A0-A5 also work as digital I/O.

PWM ~

D3, D5, D6, D9, D10, D11; analogWrite: 0-255.

Analog

A0-A5; 10-bit ADC: 0-1023; default reference = supply.

02 Communication

I2C

SDA = A4; SCL = A5. Dedicated SDA/SCL headers duplicate these pins.

SPI

COPI/MOSI = D11; CIPO/MISO = D12; SCK = D13; typical CS = D10. Also on ICSP header.

UART

RX = D0; TX = D1. Shared with USB serial; disconnect conflicting devices when uploading.

03 Power & setup

Supply

USB 5 V or recommended 7-12 V at barrel jack / VIN.

Headers

5V, 3.3V, GND, VIN, RESET, AREF; 3.3 V output is limited to 50 mA.

GPIO budget

Design for 20 mA or less per pin and respect total chip/port limits.

Before you power on

Never put motor current through a GPIO. The 5V header bypasses input regulation; avoid back-feeding USB.

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Datasheets & further reading

Arduino hardware documentation

<https://docs.arduino.cc/hardware/uno-rev3>