

Nano V3.0 USB-C

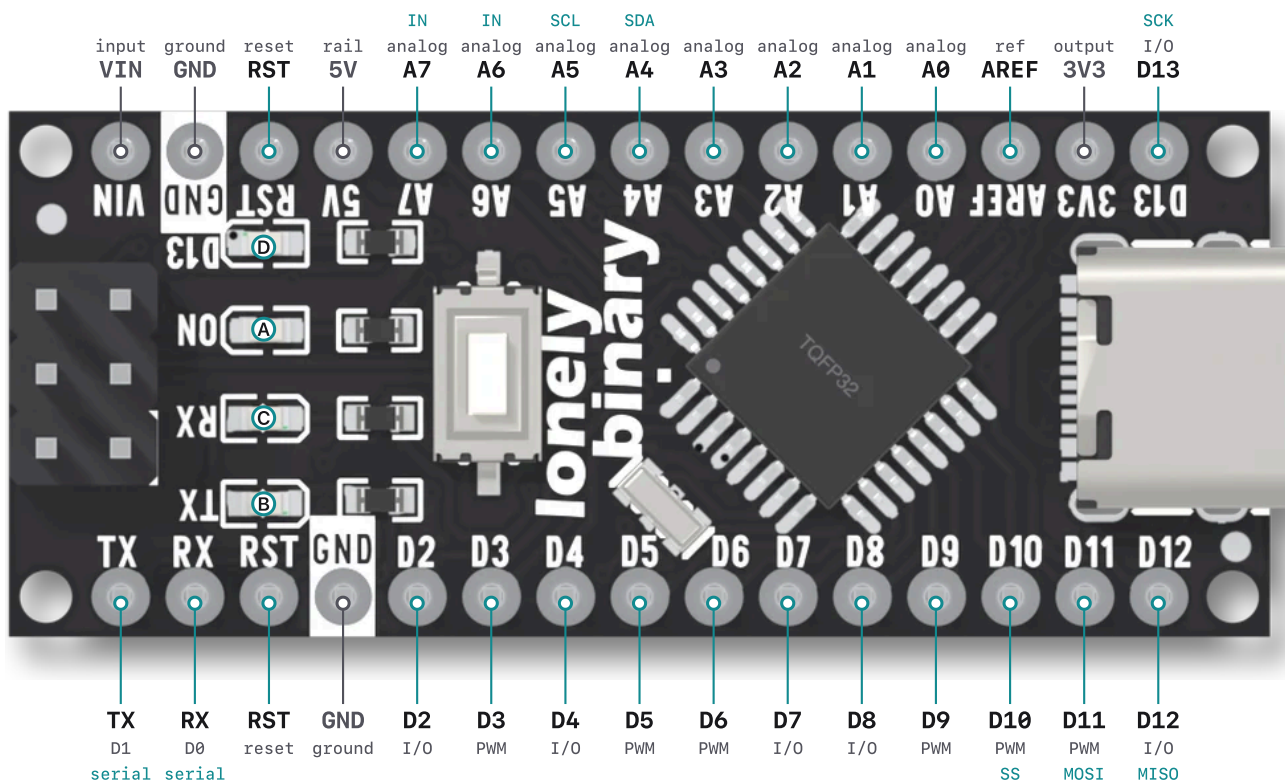
An ATmega328P at 16 MHz, a CH340C for USB serial, and thirty pin holes in two rows.

✗ Power off before the Nano goes in or comes out

Unplug the USB-C cable and anything else that feeds the boards. Check the direction: the Nano's USB-C connector goes at the end of the shield printed USB. Push both rows fully home, every pin in. **Only then connect power.** To take it out, unplug the cable first and lift the Nano after. Seated or lifted with the power on, the shield can get hot.

The top face, pin by pin

USB-C connector at the right. The names are printed on the top face beside each hole, so a jumper wire goes in from above.



A ON
5 V rail is up

B TX
the CH340C is sending to the chip

C RX
the chip is sending to the CH340C

D D13
pin D13 is HIGH

Three ways 5 V arrives

USB-C 5 V	through a Schottky diode	5V rail
VIN	through the AMS1117-5.0 regulator	5V rail
5V rail	through the ME6217C33M5G regulator	3V3 pin

5V, VIN and 3V3 are not the same kind of pin

5V is the rail itself: USB's 5 V reaches it through a diode, and it is what a sensor takes its supply from. VIN is an input to the 5 V regulator and wants about 7 to 12 V: it is where an outside supply goes when USB is not connected. 3V3 is a small output for light loads, fed from the 5 V rail. Do not feed 3V3 from outside.

The first program, blink the D13 lamp

Arduino IDE · Board Arduino Nano · Processor ATmega328P · Port the CH340 port · Serial Monitor 9600 baud · no wiring

```
// Nano V3.0 USB-C: blink the D13 lamp and say so over USB.
//
// Wiring: none. The lamp is on the board, on pin D13.
//
// Arduino IDE, Tools menu:
//   Board      Arduino Nano
//   Processor   ATmega328P
//               (ATmega328P (Old Bootloader) if the upload says
//               "not in sync")
//   Port        the CH340 port that appears when the Nano is
//               plugged in
// No library needed.

void setup() {
  pinMode(LED_BUILTIN, OUTPUT); // LED_BUILTIN is pin 13
  Serial.begin(9600);
}

void loop() {
  digitalWrite(LED_BUILTIN, HIGH);
  Serial.println("D13 high");
  delay(500);
  digitalWrite(LED_BUILTIN, LOW);
  delay(500);
}
```

D13 high
The red D13 lamp on the board lights for half a second and goes out, and the line prints once a second. If the lamp blinks and the monitor is empty, check the baud menu reads 9600.

The Tools menu: two rows decide it

ROW	CHOOSE	IF THE UPLOAD FAILS
Board	Arduino Nano	Check this first: it decides how the sketch is built.
Processor	ATmega328P	If it says not in sync, try ATmega328P (Old Bootloader). We have not checked which one this board ships with, so it is the second thing to try, not a rule.
Port	the CH340 port	It appears when the Nano is plugged in and goes when it is unplugged. Empty: try a cable that carries data.

When it does not work

The upload fails with not in sync

Choose Processor: ATmega328P (Old Bootloader) and upload again. If that is already your choice, try plain ATmega328P.

A port appears and the upload still fails

Close the Serial Monitor and anything else holding the port. Check Board and Processor, and that the port is the one that comes and goes with the Nano.

Things on 3V3 droop or reset with a motor or a strip

3V3 is a small output fed from the 5 V rail, for a light load such as a sensor. Power anything larger from its own supply and share the ground.

No serial port appears

Use a cable that carries data; some are charge-only. Then check the computer has a CH340C driver: recent Windows and macOS usually carry one.

The ON lamp is dark but the Nano is connected

ON follows the 5 V rail. On USB, try another cable and port. On VIN, check the voltage is above 5 V: the regulator can only lower a voltage.

The Nano is warm and nothing is wired to it

Unplug it and look for a bent pin touching its neighbour, or a jumper wire in the sockets. If VIN is fed, some warmth in the 5 V regulator is its job.

Specifications

Chip	ATmega328P, 16 MHz	Memory	32 KB flash, 2 KB SRAM, 1 KB EEPROM
USB	CH340C, over USB-C	Digital	14 pins, 6 with PWM
Analog in	8 pins, A6 and A7 read only	VIN	about 7 to 12 V
Pin rows	2 × 15, 2.54 mm, 15.24 mm apart	Size	43.2 × 18.0 mm, 10.1 mm tall