

ESP32-C3 OLED Board

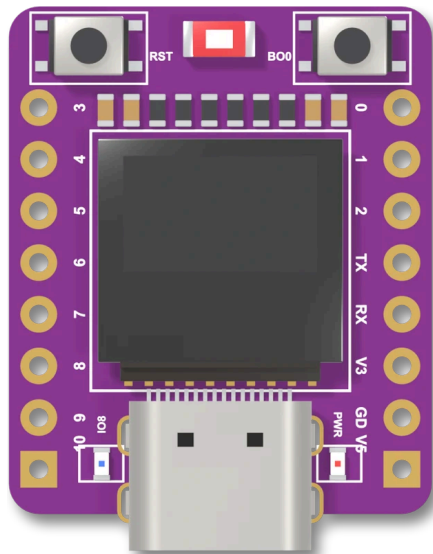
A 72 × 40 screen already on the bus, one USB-C socket, and sixteen holes in two rows.



Check the ends before seating it in a base

The board fits a base end for end as well, and that way round the base's 5 V pad meets the hole marked 3, ground meets 4 and 3.3 V meets 5: the battery rail drives three chip pins. **Put V5 on this board and 5V on the base at the same end, with the switch off and the USB cable out.**

The board



Left row 3 to 10 from the buttons down, right row 0 to V5. The screen is soldered on.

The sixteen holes: what each one is

ROW	SILK	YOUR CODE	WHAT IT IS
left	3	GPIO 3	free, ADC
left	4	GPIO 4	free, ADC
left	5	GPIO 5	OLED SDA
left	6	GPIO 6	OLED SCL
left	7	GPIO 7	free
left	8	GPIO 8	blue LED (IO8) and a 10 kΩ pull-up
left	9	GPIO 9	BOO button, a strapping pin
left	10	GPIO 10	free
right	0	GPIO 0	free, ADC
right	1	GPIO 1	free, ADC
right	2	GPIO 2	free, ADC, a strapping pin
right	TX	GPIO 21	UART0, the boot log comes out here
right	RX	GPIO 20	UART0
right	V3	—	3.3 V
right	GD	—	ground
right	V5	—	5 V

Shaded rows are already spoken for. What is printed and what code says differ on TX (GPIO 21) and RX (GPIO 20); the rest of the numbers match.

The red LED has no pin

It sits across the 3.3 V rail through a resistor and is lit whenever the board has power; no sketch can change it. The blue LED, marked IO8, is GPIO 8. The button printed BO0 is BOO, GPIO 9, with a zero where the letter should be.

The screen is 72 by 40, not 128 by 64

0.42 in, 72 × 40, SH1106 at 0x3C, on SDA GPIO 5 and SCL GPIO 6. The controller has 132 columns of memory and the glass is a window inside them, so the constructor decides everything: a 128 × 64 one shows a fragment, an SSD1306 one shifts the picture sideways. A full buffer is 360 bytes.

The first program, words on the screen

Arduino IDE · Board ESP32C3 Dev Module · USB CDC On Boot Enabled · Flash 4MB (32Mb) · Upload 921600 · Library U8g2 by oliver · no wiring

```
#include <U8g2lib.h>

// SH1106 controller, 72x40 panel, software I2C.
// Arguments: rotation, clock (SCL), data (SDA).
U8G2_SH1106_72X40_WISE_F_SW_I2C u8g2(U8G2_R0, 6, 5);

void setup() {
  u8g2.begin();
  u8g2.clearBuffer();
  u8g2.setFont(u8g2_font_6x10_tf);
  u8g2.drawStr(0, 10, "LONELY"); // y is the baseline
  u8g2.drawStr(0, 22, "BINARY");
  u8g2.sendBuffer();
}

void loop() {}
```

LONELY / BINARY
If the screen stays dark, run an I²C scanner first: a device at 0x3C means the panel is fine and the constructor or pin order is wrong. The constructor takes clock first, then data.

What is wired where

SIGNAL	PIN	NOTE
Screen SDA	GPIO 5	on the board, already
Screen SCL	GPIO 6	on the board, already
Blue LED	GPIO 8	the LED printed IO8
BOO button	GPIO 9	held low it asks for download mode
Serial on USB	USB-C	sketch talks over the chip's own USB
UART0	GPIO 21 / 20	TX / RX holes, boot log

When it does not work

No port in the Tools menu

Try another cable: a charge-only lead powers the board and presents no data pair. Use one you have moved a file with.

Upload fails at the first byte

Hold BOO, press and release RST, release BOO when the IDE prints Connecting. Press RST once afterwards to run the sketch.

The screen stays dark

Run an I²C scanner. Found at 0x3C: fix the constructor and the order, clock 6 then data 5. Nothing found: it is the bus.

Upload works, Serial Monitor empty

USB CDC On Boot is Disabled. It is compiled in, so set it to Enabled and upload again.

Uploads stop with a wire on pin 8

Download mode needs GPIO 8 high and GPIO 9 low at reset. Anything holding 8 low, an LED to ground for one, stops it. Take it off.

The blue LED will not turn off

You are looking at the red one. Red has no pin and is lit with power; blue is marked IO8 and is GPIO 8.

Specifications

Chip	ESP32-C3FH4	CPU	single-core RISC-V, up to 160 MHz
Flash	4 MB, inside the module	SRAM	400 kB
Display	0.42 in OLED, 72 × 40	Controller	SH1106 at 0x3C
Holes	16, rows 17.78 mm apart	Size	25 × 20.5 mm