

ESP32-1732S019

1.9" Colour Display Development Board — Product Information & Quick-Start Guide

A compact Wi-Fi + Bluetooth development board with an integrated 1.9-inch colour IPS display — ideal for dashboards, instruments, IoT status screens, clocks, media controllers and small user interfaces.

Key features

- **ESP32** dual-core processor with **Wi-Fi** and **Bluetooth** (Classic + BLE)
- **1.9" IPS colour display**, 170 × 320 pixels, wide viewing angle
- **USB Type-C** for programming and power (onboard CH340 USB-to-serial)
- Programmable in **Arduino IDE**, **ESP-IDF**, **MicroPython**
- Verified, documented pinout (below) — ready to use out of the box

Specifications

Microcontroller	ESP32-D0WD-V3 (dual-core Xtensa LX6, up to 240 MHz)
Flash memory	4 MB
PSRAM	None
Wi-Fi	2.4 GHz 802.11 b/g/n
Bluetooth	Bluetooth Classic (BR/EDR) and Bluetooth LE
Display	1.9" IPS TFT, 170 × 320 px, 262 K colours
Display driver	ST7789, 4-wire SPI
Backlight	LED (software controllable)
USB	Type-C, CH340 USB-to-serial
Logic level	3.3 V
Power input	5 V via USB-C

Note: This is the **classic ESP32** version of this board (not the ESP32-S3). Because it has Bluetooth *Classic*, it supports audio (A2DP) and Bluetooth serial (SPP) profiles that the S3 variants do not.

Display pinout (verified)

The display is wired to the ESP32's **HSPI** bus:

Display signal	ESP32 GPIO
SPI Clock (SCLK)	GPIO 14
SPI Data (MOSI)	GPIO 13
Chip Select (CS)	GPIO 15
Data / Command (DC)	GPIO 2
Reset (RST)	tied to EN (use -1 in software)
Backlight (BL)	GPIO 21

Free GPIOs available for your own use (buttons, sensors, I²S audio, etc.) include 4, 16, 17, 22, 25, 26, 27, 32, 33. GPIOs 6–11 are reserved for the onboard flash and must not be used.

Quick start (Arduino IDE)

1. **Install the ESP32 boards package** — in *Boards Manager*, search “esp32” (by Espressif Systems) and install it.
2. **Install the CH340 USB driver** if your PC doesn't already have it, so the board appears as a COM port.
3. **Board settings:** Board = **ESP32 Dev Module**; Flash Size = **4 MB**; Upload Speed = 921600 (drop to 115200 if uploads are unreliable); select the correct Port.
4. **Upload.** If you get a “Failed to connect ... wrong boot mode” error, enter download mode manually: **hold BOOT, tap RESET/EN, then release BOOT**, and upload again.

Display library & example configuration

We recommend **LovyanGFX** (install via Library Manager). The entire pin configuration lives in your sketch — no library files to edit. Use this configuration for this board:

```
#define LGFX_USE_V1
#include <LovyanGFX.hpp>

class LGFX : public lgfx::LGFX_Device {
    lgfx::Panel_ST7789 _panel;
    lgfx::Bus_SPI      _bus;
public:
    LGFX() {
        { auto c = _bus.config();
          c.spi_host   = SPI2_HOST;    // HSPI
          c.spi_mode    = 0;
          c.freq_write  = 40000000;
          c.pin_sclk    = 14;
          c.pin_mosi    = 13;
          c.pin_miso    = -1;
          c.pin_dc       = 2;
          _bus.config(c); _panel.setBus(&_bus); }
        { auto c = _panel.config();
          c.pin_cs      = 15;
          c.pin_rst     = -1;          // reset tied to EN
          c.panel_width  = 170;
          c.panel_height = 320;
          c.offset_x     = 35;         // 170-wide panel offset
          c.offset_y     = 0;
          c.invert       = true;       // IPS panel
          c.rgb_order    = false;
          _panel.config(c); }
        setPanel(&_panel);
    }
};
LGFX tft;

void setup() {
    pinMode(21, OUTPUT);
    digitalWrite(21, HIGH);           // turn the backlight on
    tft.init();
    tft.setRotation(1);              // landscape; 0/2/3 for other orientations
    tft.fillScreen(TFT_BLACK);
    tft.setTextColor(TFT_WHITE);
    tft.drawString("Hello!", 10, 10);
}

void loop() {}
```

Tips

- **Backlight:** drive **GPIO 21** high to switch the backlight on. Use a plain digital write rather than PWM control to avoid a known issue on recent ESP32 cores.
- **Colours / orientation:** if red and blue look swapped, change `rgb_order`; if the image is shifted sideways, adjust `offset_x`.
- **Touch:** this is a **non-touch** display; use buttons or a rotary encoder for user input.

Support

Sold and supported by **NDE3D**. For questions, please contact us via nde3d.co.za.

Specifications are based on bench verification of the supplied units and are provided in good faith; minor variations between production batches are possible.