

PRODUCT DATASHEET · VARIANT OF 333307



# Inkplate 4TEMPERA With glass panel

333308

Inkplate 4TEMPERA is a versatile e-paper touchscreen device with Wi-Fi, Bluetooth, and extensive sensors for embedded development.

Full product documentation, files and tutorials: [solde.red/333308](https://solde.red/333308)

## CORE ATTRIBUTES

SKU 333308

WEIGHT 249 g

BARCODE 732388658008

## DESCRIPTION

**Inkplate 4TEMPERA** is an easy-to-use, all-in-one device that puts the power of **e-paper technology** in the palm of your hand. Behind its 3.8-inch, 600×600-pixel e-paper touchscreen, it packs the following features into one compact, elegant package: **frontlighting**, an abundance of sensors, Wi-Fi and Bluetooth connectivity, a built-in battery, and a low-power operating mode.

In this digital age, screens are the windows through which we interact with much of our world, and **e-paper technology** addresses many of the challenges posed by conventional screens. More specifically, they offer **high contrast**, daylight readability, and unparalleled energy efficiency. And there is one more thing that sets our screens apart: **sustainability**. Every Inkplate 4TEMPERA gives new life to an ED038TH2 E Ink display that we've rescued from a tragic future as e-waste. We'd rather see these screens in your hands than in a landfill.

Inkplate 4TEMPERA is powered by the **ESP32 microcontroller**, to which we've added all of the peripherals we thought you might find useful. Inside the enclosure is a **1200-mAh battery** and power-management circuitry so you can charge it easily and determine its remaining charge accurately. Inkplate 4TEMPERA's real-time clock (RTC) allows for precise time measurements, and its **microSD card slot** allows you to store and display images, among other applications. If you're looking for sensors, you'll find a gyroscope and an accelerometer, as well as temperature, humidity, air quality, and gesture sensors. Inkplate 4TEMPERA also has a built-in, frequency-adjustable buzzer. And of course, it includes various GPIO pins that support peripheral connectivity through a GPIO expander or via the qwiic ecosystem. A **USB-C to USB-C** cable is included in the package, so you can start programming right out of the box.

Designed for high-performance embedded development, the Inkplate 4TEMPERA fully supports Espressif's official **ESP-IDF** framework. This native environment grants developers low-level control over the hardware, enabling precise memory management, optimized display rendering routines, and custom power profiling to take full advantage of the board's ultra-low deep sleep capabilities. Whether building

home prototypes or commercial-grade e-paper applications, ESP-IDF provides the robust foundation needed to unlock the full potential of Inkplate's wireless and processing features.

So, if you're in the market for a nice-looking screen on which you can display whatever you want - wherever, at whatever time of day, and for however long you want - we invite you to check out **Inkplate 4TEMPERA**. We think you'll find it delightful!

#### **Inkplate 4TEMPERA options:**

- **Without glass panel:** This version is powered by an ESP32 microcontroller with a 3.8-inch touchscreen e-paper display, integrated lighting, Li-Ion battery, enclosure, and various peripheral components.
- **With glass panel:** This version is powered by an ESP32 microcontroller with a 3.8-inch touchscreen e-paper display, integrated lighting, Li-Ion battery, enclosure, various peripheral components, and is additionally protected by a glass panel.

## TECHNICAL DETAILS

- **Display:** 3.8-inch, 600×600 pixel touch-sensitive electronic paper with grayscale support, partial updates, and extremely fast content refresh
- **Processor:** Powered by an ESP32 microcontroller with built-in WiFi and Bluetooth 4.0 (BLE)
- **Power Efficiency:** Low power consumption, only 18 µA in deep sleep mode; includes a battery charger on the board
- **Storage:** microSD card reader for image display
- **Compatibility:** Arduino library ready (100% compatible with Adafruit GFX)
- **Sensors:** APDS-9960 gesture sensor, BME680 environmental and air quality sensor, Buzzer, accelerometer, and gyroscope
- **Included:** 1200mAh li-ion battery and a 3D printed case
- **Dimensions:** 90 × 83 × 24 mm (both versions)

## SPECIFICATIONS

|                      |                 |
|----------------------|-----------------|
| DISPLAY SIZE (INCH)  | 3.8 inch        |
| DISPLAY RESOLUTION W | 600             |
| DISPLAY RESOLUTION H | 600             |
| DISPLAY COLOR        | Grayscale       |
| GRAYSCALE LEVELS     | 3               |
| FRONTLIGHT           | Yes             |
| TOUCH SUPPORT        | Capacitive      |
| MCU PART NUMBER      | ESP32-WROVER    |
| MCU CLOCK (MHZ)      | 240 MHz         |
| WIFI                 | Wifi4           |
| BLUETOOTH            | Classic And Ble |
| QWIIC COMPATIBLE     | Yes             |
| SD CARD SLOT         | Yes             |

|                        |                          |
|------------------------|--------------------------|
| BATTERY INCLUDED       | Yes                      |
| BATTERY CAPACITY (MAH) | 1200 mAh                 |
| BATTERY CONNECTOR      | Jst 2Pin                 |
| SLEEP CURRENT UA       | 18                       |
| DEV ENVIRONMENTS       | Arduino IDE, MicroPython |
| HAS ENCLOSURE          | Yes                      |
| RTC ONBOARD            | Yes                      |

## LINKS

|                               |                                                                                                                                                                                                                       |
|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Arduino Library               | <a href="https://github.com/SolderedElectronics/Inkplate-Arduino-library">https://github.com/SolderedElectronics/Inkplate-Arduino-library</a>                                                                         |
| Open Source Hardware Files    | <a href="https://github.com/SolderedElectronics/Soldered-Inkplate-4-TEMPERA-with-glass-panel-hardware-design">https://github.com/SolderedElectronics/Soldered-Inkplate-4-TEMPERA-with-glass-panel-hardware-design</a> |
| MicroPython Module            | <a href="https://github.com/SolderedElectronics/Inkplate-micropython">https://github.com/SolderedElectronics/Inkplate-micropython</a>                                                                                 |
| Full Documentation            | <a href="https://docs.soldered.com/inkplate/4tempera/overview">https://docs.soldered.com/inkplate/4tempera/overview</a>                                                                                               |
| Arduino: Get Started          | <a href="https://docs.soldered.com/inkplate/4tempera/quick-start-guide/">https://docs.soldered.com/inkplate/4tempera/quick-start-guide/</a>                                                                           |
| Hardware Details              | <a href="https://docs.soldered.com/inkplate/4tempera/hardware/design/">https://docs.soldered.com/inkplate/4tempera/hardware/design/</a>                                                                               |
| Arduino Library Documentation | <a href="https://docs.soldered.com/inkplate/4tempera/basics/initialization/">https://docs.soldered.com/inkplate/4tempera/basics/initialization/</a>                                                                   |
| Arduino: Get Started          | <a href="https://inkplate.readthedocs.io/en/latest/get-started.html">https://inkplate.readthedocs.io/en/latest/get-started.html</a>                                                                                   |
| Full Documentation            | <a href="https://inkplate.readthedocs.io/en/latest/">https://inkplate.readthedocs.io/en/latest/</a>                                                                                                                   |

## GALLERY

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