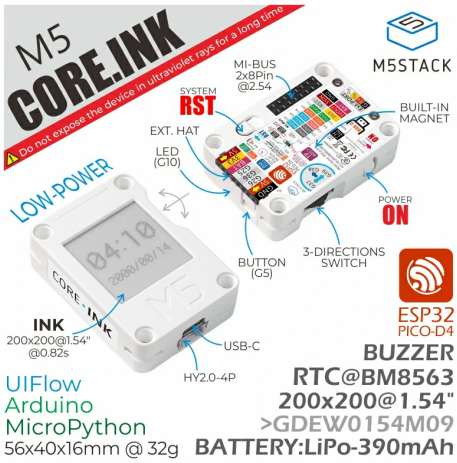
CoreInk

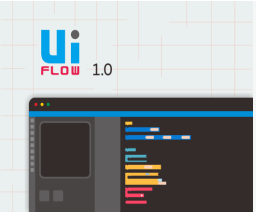
SKU:K048



Description

CoreInk is a main control device with an E-Ink display launched by M5Stack, using the ESP32-PICO-D4 controller. The front is embedded with a 1.54" E-Ink display with a resolution of 200x200, supporting black/white display. Compared to ordinary LCD screens, the E-Ink display provides a better text reading experience, with features such as low power consumption and image retention when powered off. For human-machine interaction, it offers a rotary switch and physical buttons, integrated LED indicator, and buzzer. It has a built-in 390mAh lithium battery, combined with an internal RTC (BM8563) to achieve timed sleep and wake-up functions, providing excellent battery life. There are independent power and reset (RST) buttons on the left side and bottom of the device, making it easy to use and debug. It offers a variety of peripheral interfaces (HY2.0-4P, M5-Bus, HAT module interface) to expand various sensor devices, providing infinite possibilities for subsequent application development.

Tutorial



UIFlow

This tutorial will show you how to control the CoreInk device through the UIFlow graphical programming platform.

UiFlow2

This tutorial will show you how to control the CoreInk device through the UiFlow2 graphical programming platform.

Arduino IDE

This tutorial will show you how to control the CoreInk device using the Arduino IDE.

Features

- Developed based on ESP32, supports WiFi
- Built-in 4M Flash
- Low power consumption display panel

- Nearly 180-degree viewing angle
- Human-machine interaction interface
- Magnetic back design
- Built-in lithium battery
- Rich expansion interfaces
- Development Platform
  - UiFlow1
  - UiFlow2
  - Arduino IDE
  - ESP-IDF
  - PlatformIO

Includes

- 1 x CoreInk

Applications

- IoT controller
- E-book reader
- Industrial instrument display panel
- Electronic label

Specifications

Specification	Parameter
SoC	ESP32-PICO-D4 @ Dual-core processor, 240MHz main frequency
DMIPS	600
SRAM	520KB
Flash	4MB
Wi-Fi	2.4 GHz Wi-Fi
Input Voltage	5V @ 500mA
Interface	USB Type-C x 1, HY2.0-4P x 1, M5-Bus female connector, top HAT expansion interface
E-ink Screen	GDEW0154M09, SPI interface, 200 x 200@1.54", Dpi:184, 1-bit black/white display (Grayscale: 2), Viewing area size (mm): 27.6 x 27.6, Dot pitch (mm): 0.138 x 0.138, Refresh time (s): 0.82, Partial refresh time (s): 0.24
Physical Button	Programmable button x 1, reset button x 1, power button x 1
LED	Green LED x 1
RTC	BM8563
Buzzer	Passive buzzer * 1
Antenna	2.4G 3D antenna
Pin breakout	G25, G26, G36, G23, G34, G18, G21, G22, G14, G13
Battery	390mAh@3.7V
Operating Temperature	0 ~ 60°C
Case Material	Plastic (PC)
Product Size	56.0 x 40.0 x 16.0mm

Specification	Parameter
Product Weight	31.5g
Package Size	80.0 x 45.0 x 20.0mm
Gross Weight	42.6g

Learn

Note

Caution:

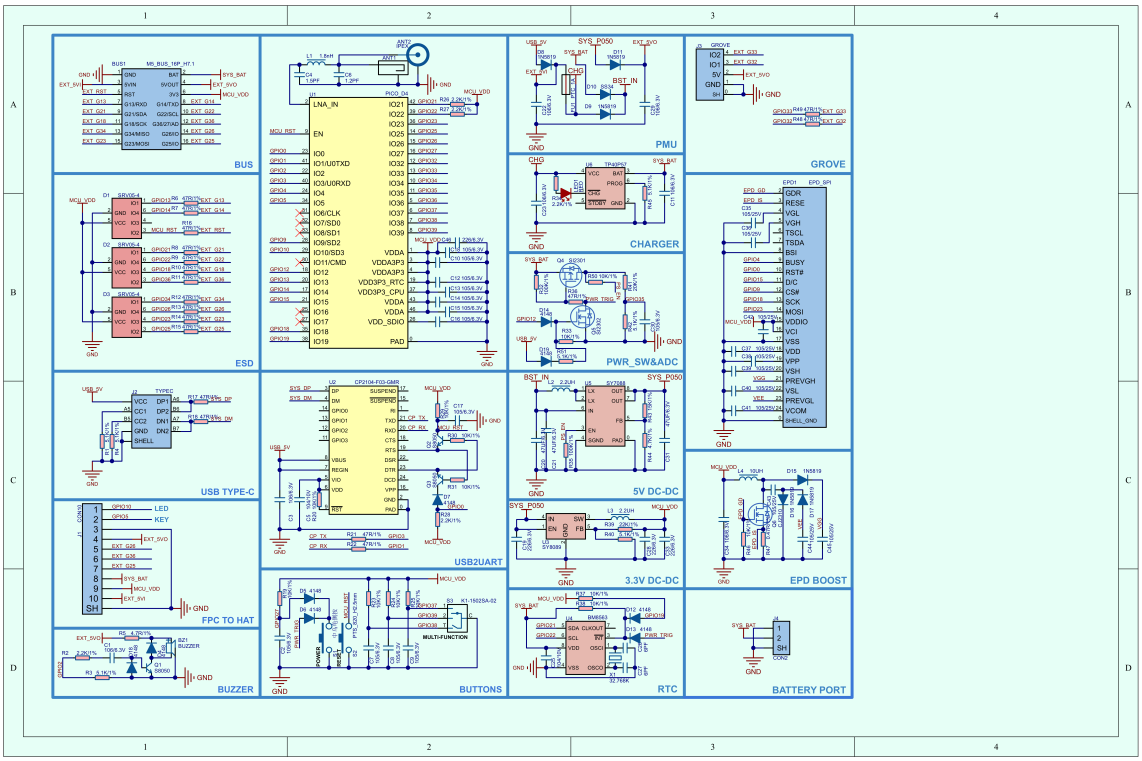
Do not expose the device in ultraviolet rays for a long time, or it may damage the screen.

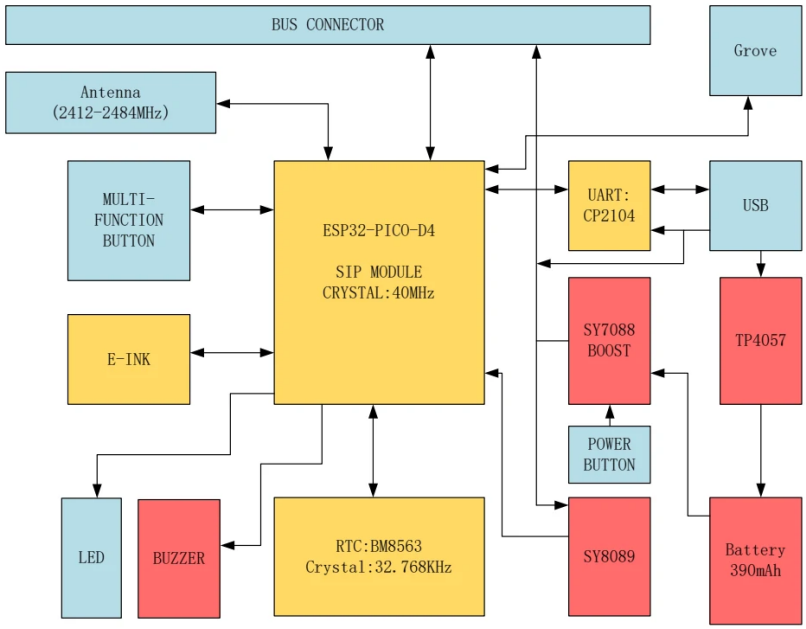
Precautions:

When using, please avoid high-frequency refreshing for a long time. It is recommended to refresh at intervals of (15s/refresh). Do not expose to ultraviolet light for a long time, as this may cause irreversible damage to the E-Ink display. CoreInk uses a low-power power management scheme different from CORE and StickC devices. When using, the PWR button is used as the power-on button (long press for 2s). To shut down the device, you need to use the software API or press the reset button on the back.

Schematics

- CoreInk Schematics PDF





PinMap

E-Ink Screen

Screen Pixels: 200x200

ESP32-PICO-D4	G4	G0	G15	G9	G18	G23
GDEW0154M09	BUSY	RST	D/C	CS	SCK	MOSI

Rotary Switch & Physical Buttons & LED & Buzzer

ESP32-PICO-D4	G37	G38	G39	G5	G10	G2	GPI12
Rotary Switch	Right	Center	Left	/	/	/	/
Physical Button	/	/	/	Physical Button	/	/	/
LED	/	/	/	/	LED	/	/
Buzzer	/	/	/	/	/	Buzzer	/
Power Control	/	/	/	/	/	/	MOS

USB to Serial Download

ESP32-PICO-D4	G1	G3
CP2104	RXD	TXD

Internal I2C Connection

ESP32-PICO-D4	G21	G22
BM8563	SDA	SCL

ESP32 ADC/DAC Mappable Pins

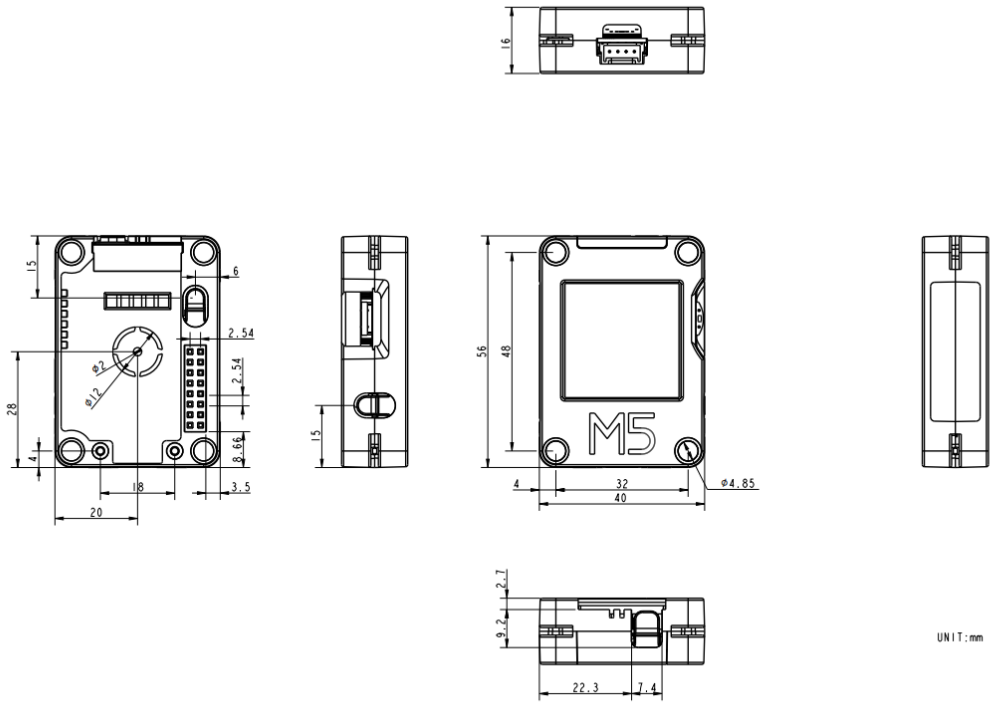
ADC1	ADC2	DAC1	DAC2
8 Channels	10 Channels	2 Channels	2 Channels
G32-39	G0/2/4/12-15/25-27	G25	G26

For more information on pin assignments and pin remapping, please refer to the ESP32 datasheet

HY2.0-4P

HY2.0-4P	Black	Red	Yellow	White
PORT.CUSTOM	GND	5V	G32	G33

Model Size



Datasheets

- ESP32
- BM8563
- SY7088
- GDEW0154M09

Softwares

Arduino

- CoreInk Arduino Quick Start
- CoreInk Arduino M5Unified Driver Library
- CoreInk Arduino M5GFX Driver Library
- CoreInk Factory Test

UiFlow1

- CoreInk UiFlow1 Quick Start

UiFlow2

- CoreInk UiFlow2 Quick Start

USB Driver

> Click the link below to download the driver for your operating system. There are currently two driver chip versions, CP210X (for **CP2104** version) / CP34X (for **CH9102** version) driver packages. After extracting the package, select the installation package corresponding to your operating system's bit version for installation. (If you are unsure which USB chip your device uses, you can install both drivers. **CH9102_VCP_SER_MacOS v1.7** may show an error during installation, but it has actually completed the installation, so you can ignore it.)

Driver Name	Applicable Driver Chip	Download Link
CP210x_VCP_Windows	CP2104	Download
CP210x_VCP_MacOS	CP2104	Download
CP210x_VCP_Linux	CP2104	Download
CH9102_VCP_SER_Windows	CH9102	Download
CH9102_VCP_SER_MacOS v1.7	CH9102	Download

Easyloader

Easyloader	Download Link	Note
CoreInk Factory Test Easyloader v1.0.1	download	/

Video

- Demonstrating some basic features of CoreInk.

CoreInk.mp4

Product Comparison

To compare information on the Paper / CoreInk series products, you can visit the Product Selection Table, check the target products, and get the comparison results. The selection table covers key information such as core parameters and functional features, and supports comparison of multiple products simultaneously.