

M5Station-485

SKU:K123



Description

M5Station-485 is a multi-purpose **industrial level** programmable embedded controller with Espressif **ESP32** SOC, integrated **Wi-Fi** solution, dual core low-power **Xtensa® 32-bit LX6** microprocessor, main frequency up to **240MHz**. Onboard **16M FLASH**, integrated **240*135 1.14" full colour HD IPS display** + **physical keypad** + **rich peripherals, two sets of six expansion ports** + **Low-power sleep/wakeup function**. Multiple power supply options **USB Type-C, PWR485, External Battery (battery socket reserved on board)**. The integrated high power density boost DC/DC converter SCT12A0DHKR on board ensures the **stability** of the electrical equipment even in complex applications. This device is suitable for industrial control, intelligent buildings, multi-channel data acquisition nodes and prototyping applications.

○ HMI:

- 1.14" IPS display
- 3 physical programmable keys
- 1 ON/OFF button
- 7 programmable RGB LEDs

○ Power supply:

○ Input:

- Integrated 9~24V->5V DC/DC **SY8303** Buck circuit
- **AXP192** power management chip

○ Output:

- Each interface (6 Grove, 1 USB-A) is electronically switched on/off by **SGM2553D**.
- **INA3221** for voltage/current acquisition for Grove interfaces, and **INA199** for current

acquisition for the USB-A

- Integrated high power density boost DC/DC converter `SCT12A0DHKR`
- Low power consumption:
 - Integrated RTC `BM8563` to achieve low power sleep/wakeup function
- **Port Design:**
 - 6 way Grove expansion interface
 - Port A1/A2 shared the same power and signal pins
 - Port B1/B2/C1/C2 have separate power and signal pins
 - `PWR485` interface (4-wire - VH3.96)
 - RS485
 - 9~24V power input
 - USB Type-A power supply output only, no signal pins
- **Mechanical Design:**
 - Din rail
 - Magnet
 - Wall Mount
 - Screws
 - Ribbon
- **Programming development:**
 - Supports UIFlow graphical programming platform , scripting, compile-free, cloud push
 - Fully compatible with Arduino, ESP32-IDF and other mainstream development platforms
 - Support FreeRTOS, with the help of dual-core and multitasking mechanism, efficient organization of task logic, optimize the execution efficiency of the program.

| Power Management

Operation:

Power on: Click the central power button.

Power off: Press and hold the central power button for 4 seconds.

| Include

- 1x M5Station-485
- 1x Type-C USB (100cm)
- 1x HEX Key

| Applications

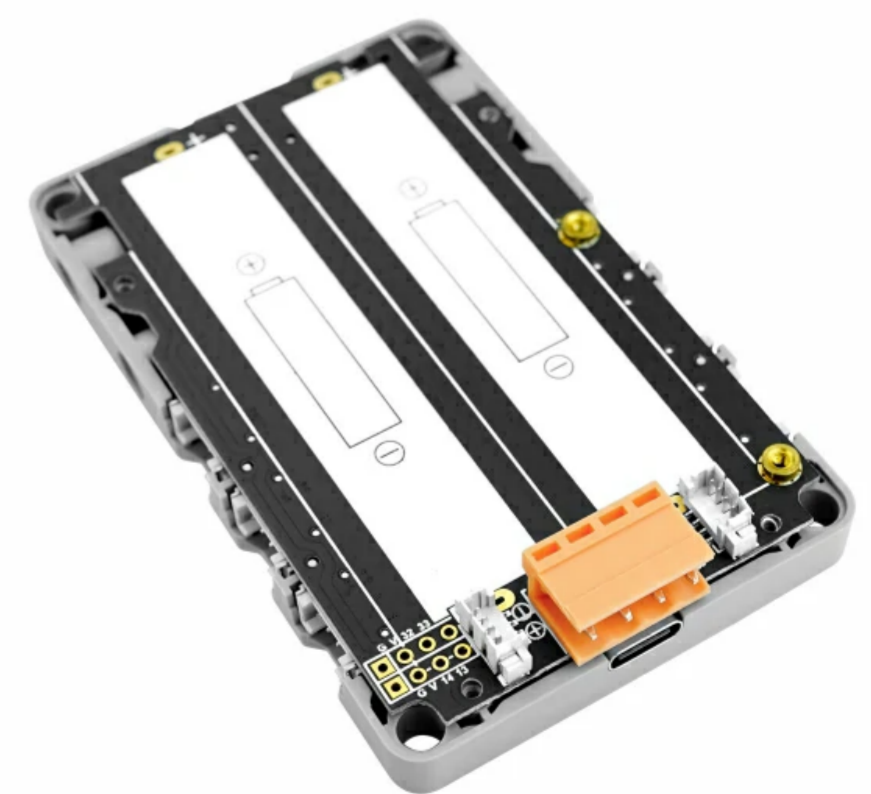
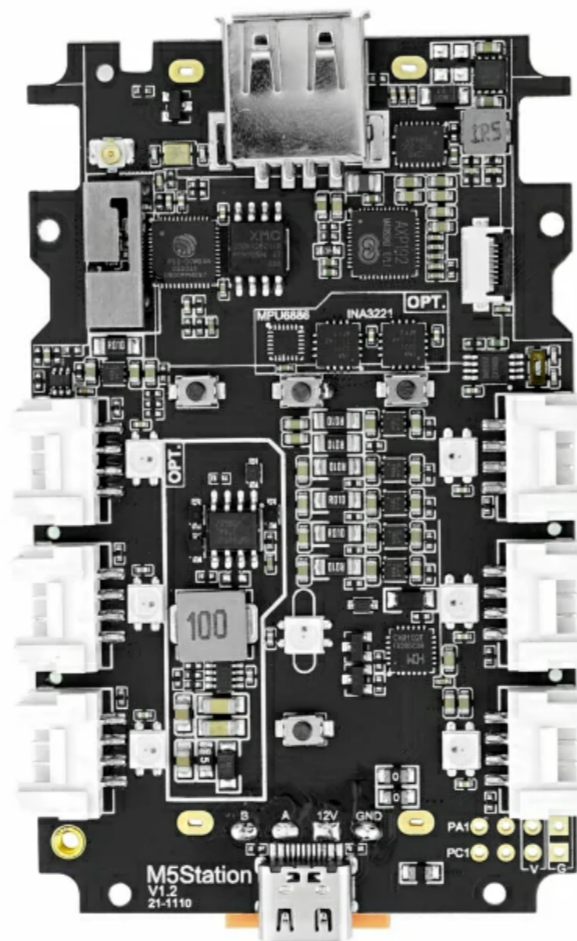
Applications

- Industrial Controller
- Multi-channel data acquisition
- IoT product prototyping
- DIY/Prototyping

Specification

Spec	Parameters
ESP32-D0WDQ6-V3	240MHz dual core, 600 DMIPS, 520KB SRAM, Wi-Fi
Flash	16MB
USB powered	5V@1A
RS485 power supply	9~24V@1A
Interface	Type-C * 1, GROVE(I2C+I/O+UART) * 6, Full-Size USB Type-A(OUTPUT),PWR485
LEDs	SK6812 * 7
Pushbuttons	Power Button, Physical Button \ 3
IPS LCD Screen	1.14"@240*135 ST7789V2
RTC	BM8563
PMU	AXP192
Voltage/Current Collector	INA3221 + INA199
USB Chips	CH9102F
Step-Down Chips	SY8303
DC/DC Boost	SCT12A0DHKR
Power Distribution Switch	SGM2553D
Antenna	2.4G 3D Antenna
Operating	

Temperature	0°C to 60°C Parameters
Base Screw Specification	Hexagon socket cup head M2*8 screw
Internal PCB reserved interface	Battery interface(Specification:1.25mm-4P)USB line interface(Specification:1.25mm-4P)
Net Weight	63.1g
Gross Weight	108.1g
Product Dimensions	92 x 64.5 x 35 mm
Package Size	104.5 x 70.5 x 50mm
Case Material	ABS+PC



Driver Installation

? >Click on below link to download the driver for your operating system. After extracting the zip

package, select the installation package that corresponds to the operating system bit number to install. (**CH9102_VCP_SER_MacOS v1.7** may report an error during the installation process, but the installation is actually complete, just ignore it.) If you are unable to download the program properly (timeout or Failed to write to target RAM), you can try to reinstall the driver.

Driver name	Applicable driver chip	Download link
CH9102_VCP_SER_Windows	CH9102	Download
CH9102_VCP_SER_MacOS v1.7	CH9102	Download

PinMap

key BUTTON A & key BUTTON B & key BUTTON C & power button

ESP32 Chip	GPIO37	GPIO38	GPIO39
Key Pins	BUTTON A	BUTTON B	BUTTON C

Color TFT screen

Driver chip:ST7789v2 Resolution:135 * 240 @1.14"

ESP32 Chip	GPIO5	GPIO1	GPIO1	GPIO1	GPIO2	
		5	8	9	3	
AXP192						AXP_LD
Chip						O3
LCD	CS	RESET	SCK	RS	MOSI	LCD_BL

RTC

ESP32 Chip	GPIO21	GPIO22	
BM8563	SDA	SCL	INT
AXP192			AXP_PWR

Current and Voltage Monitor

ESP32 Chip	GPIO21	GPIO22	Control Channel
INA3221(0x40)	SDA	SCL	AXP_GPIO0,AXP_GPIO1

ESP32 Chip INA3221(0x41)	GPIO21 SDA	GPIO22 SCL	Control Channel AXP_GPIO2,AXP_GPIO3,AXP_GPIO4
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Internal I2C connection

ESP32 Chip	GPIO21	GPIO22
AXP192	SDA	SCL
BM8563	SDA	SCL
INA3221	SDA	SCL

PWR485

Chip	GPIO3	GPIO1	GPIO2	(DCDC 9~24- >5V)	GND
SP3485	TXD	RXD	REn(READ Enable)		GND
SY8303				VIN_12V	

Power Management Chips (AXP192)

RTC	LCD BackLight	ESP32-3.3V SK6812,INA3221,CH902F
LDO1	LDO3	DC-DC1

USB to Serial Port

ESP32 Chip	GPIO3	GPIO1
CH9102F	TXD	RXD

M5Station Port Description

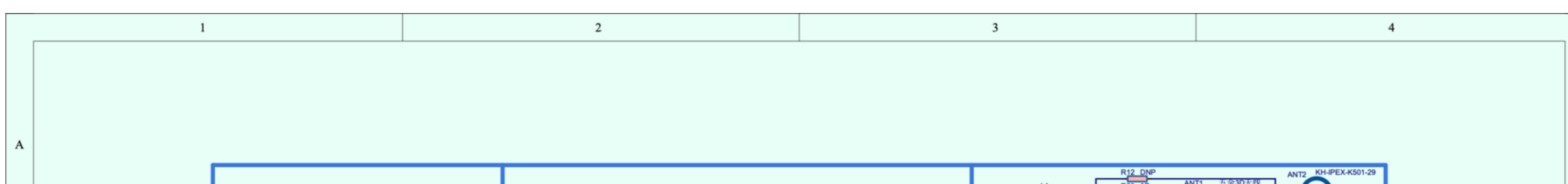
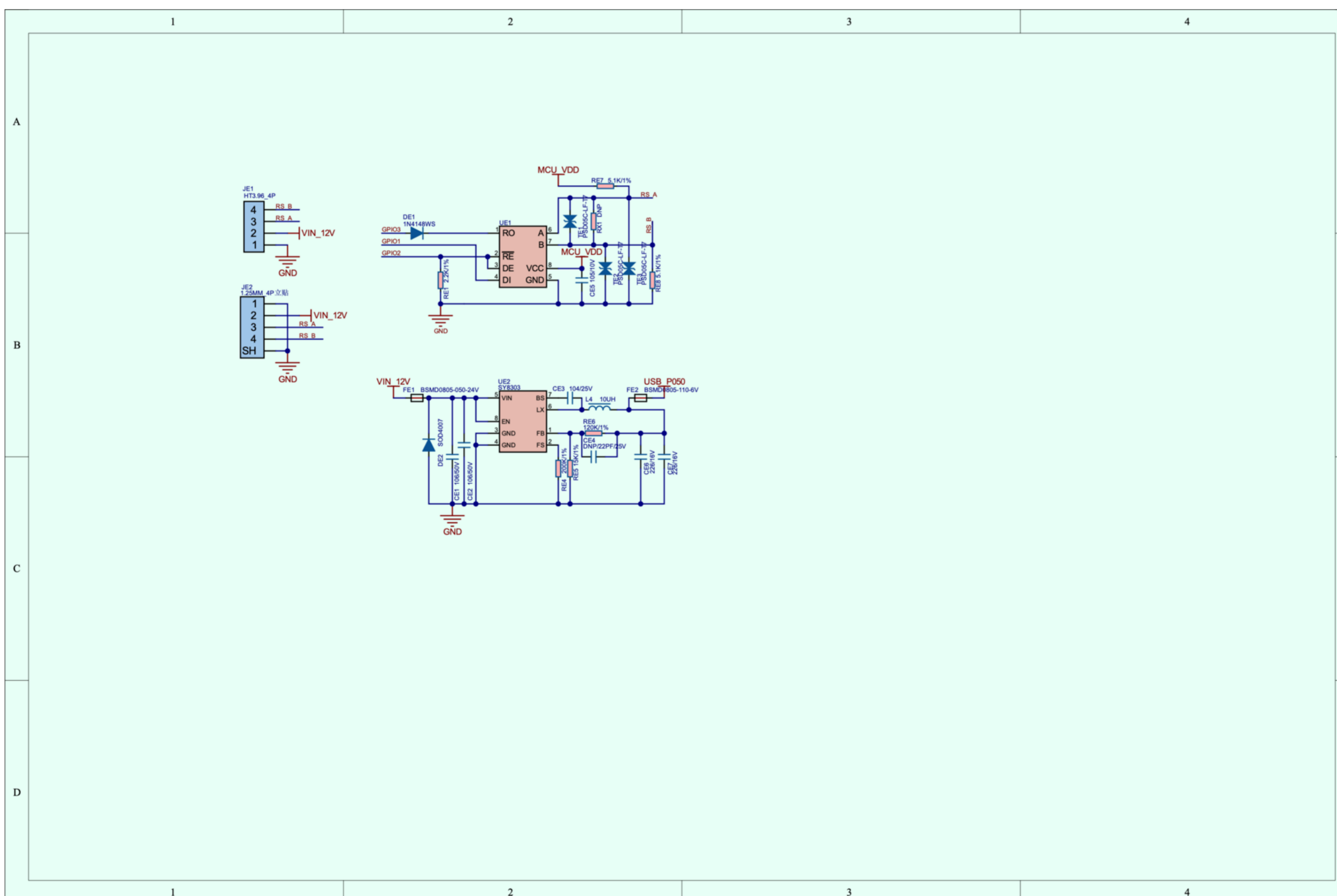
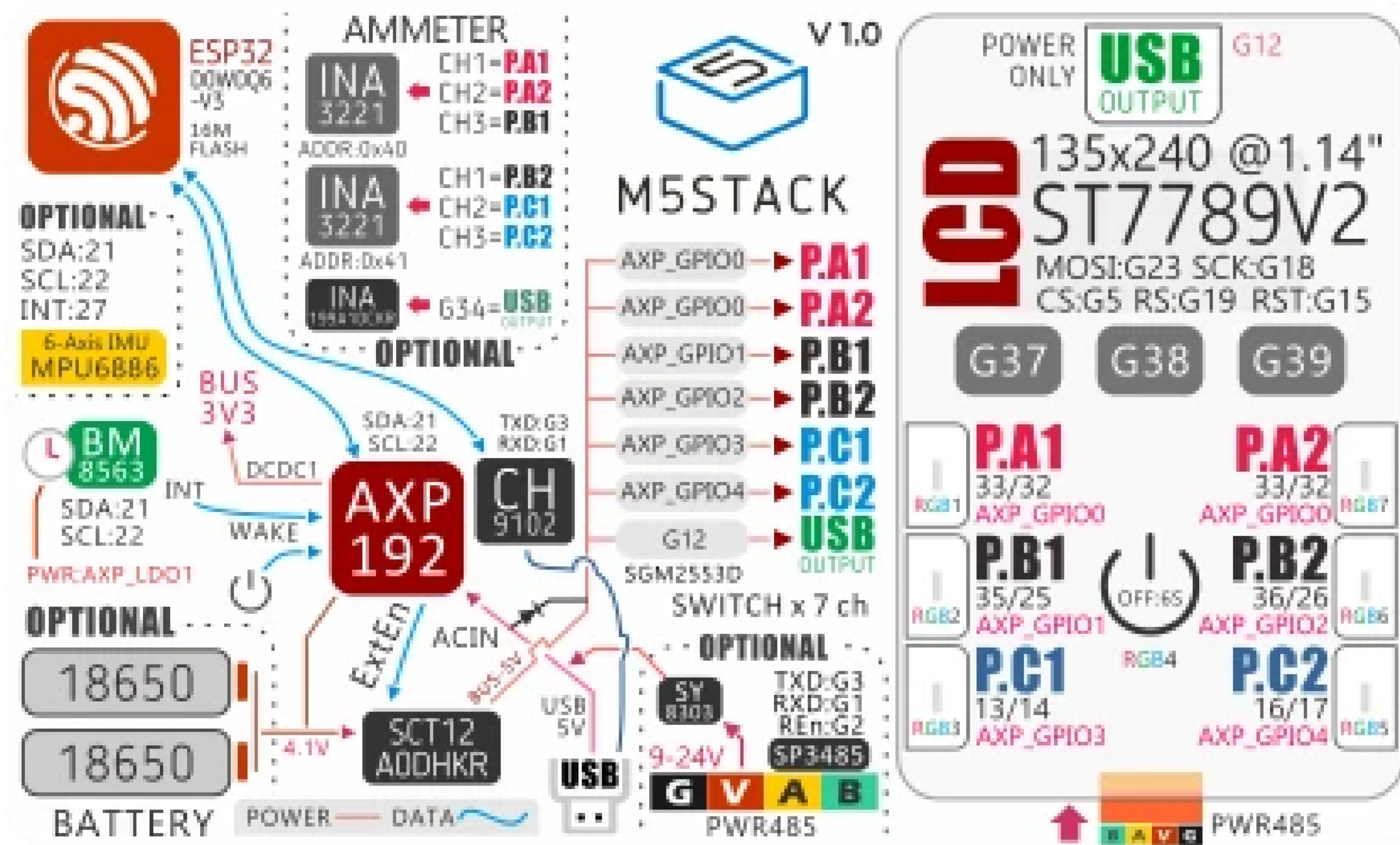
PORT	PIN	Metering Port	Notes:
PORT-A1(red)	G32/33(SDA/SCL)	AXP_GPIO0	I2C
PORT-A2(red)	G32/33(SDA/SCL)	AXP_GPIO0	I2C
PORT-B1(black)	G25/35(OUT/IN)	AXP_GPIO1	DAC/ADC

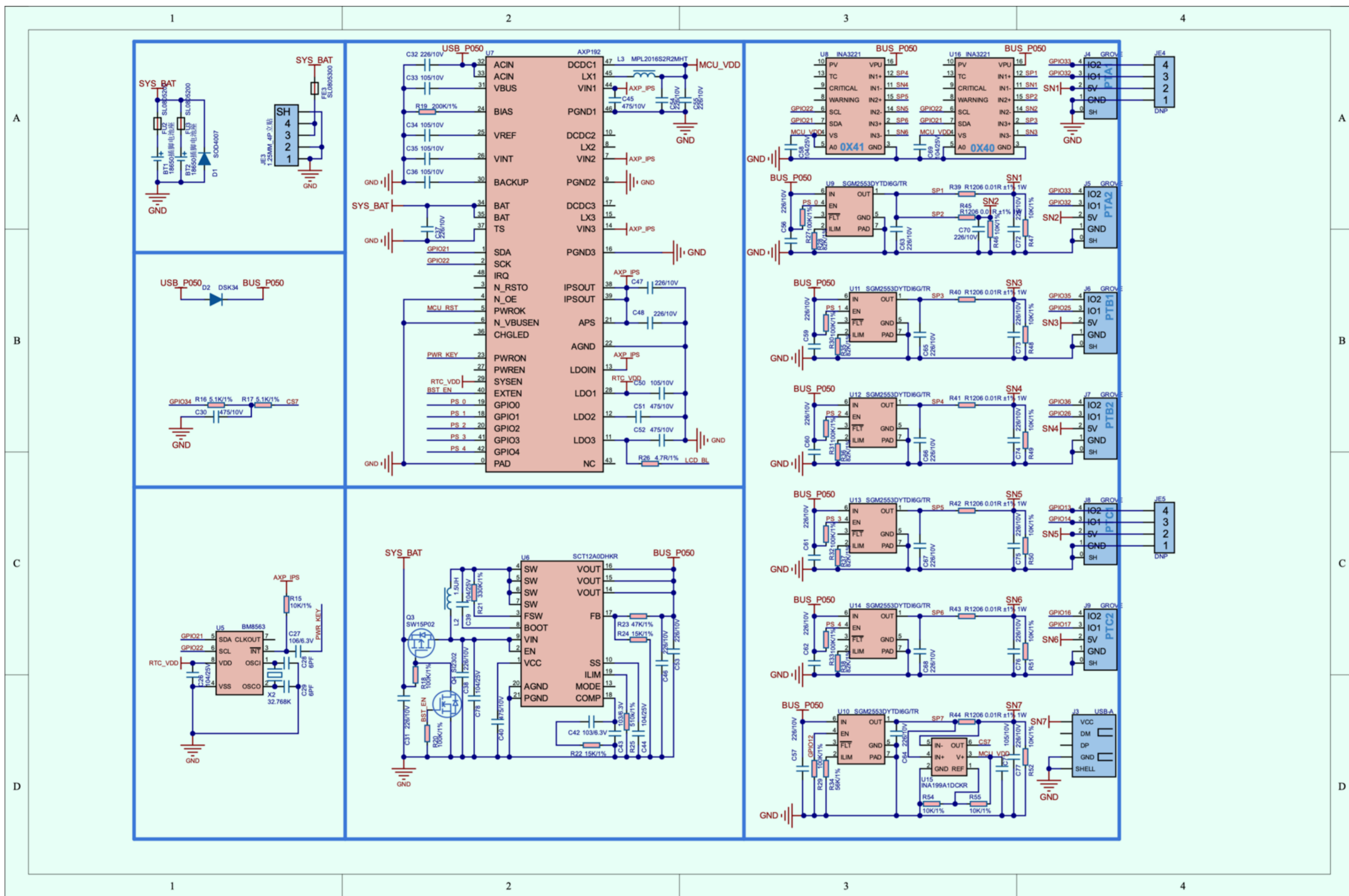
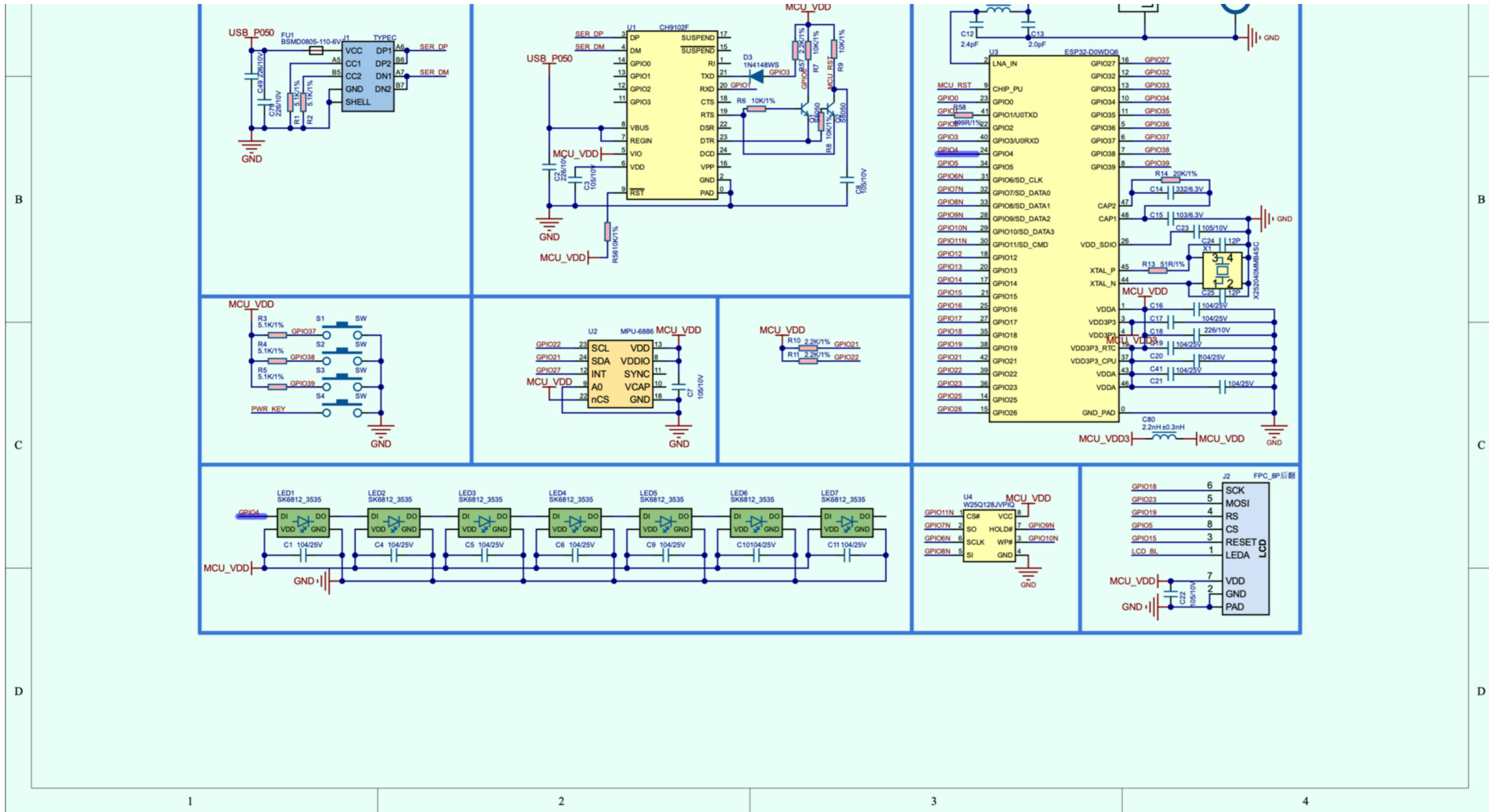
PORT	PIN	Metering Port	Notes:
PORT-B2(black)	G26/36(OUT/IN)	AXP_GPIO2	DAC/ADC
PORT-C1(blue)	G14/13(TX/RX)	AXP_GPIO3	UART
PORT-C2(blue)	G17/16(TX/RX)	AXP_GPIO4	UART

Power Consumption Test

Operating current (LCD, LED, WIFI on)	Standby current (LCD, LED on)
161mA	105mA

Schematic





o [Schematic PDF](#)

Related Link

o [Datasheet](#)

- o [ESP32](#)
- o [ST7789v2](#)
- o [SY8303AIC](#)
- o [SP3485](#)
- o [SCT12A0DHKR](#)
- o [INA3221_EN](#)
- o [INA199_EN](#)
- o [SGM2553](#)
- o [BM8563](#)
- o [AXP192 datasheet](#)
- o [AXP192 register](#)

Version differentiation

M5Station-485

PWR485 (RS485 + power
input)

M5Station-BAT

MPU6886 on board, can carry two 18650 batteries
(parallel)

Example

Arduino

- [M5Station Lib](#)

FAQ

HARDWARE RELATED

Q1: The RS485 device cannot communicate normally/data is garbled. Packet loss, etc. 

Confirm whether the TX/RX pin on the TTL side of the pin is correct, try to add two 120Ω terminal resistors at the beginning and end of the device line to reduce signal reflection interference