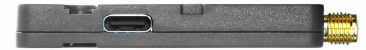
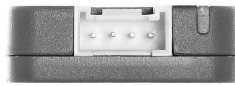


Unit C6L

SKU:U202





Description

Unit C6L is a highly integrated **LoRa** communication unit, equipped with the **Stamp C6LoRa** module (featuring **ESP32-C6** as the core controller, integrating **SX1262** LoRa transceiver and RF switch circuit), supporting **868 ~ 923 MHz** operating frequency range. Unit C6L integrates a **0.66"** **OLED** monochrome display, programmable RGB indicator, buzzer, and user button, providing intuitive human-machine interaction. The device supports connection to the **Meshtastic** network or secondary development, enabling rapid deployment of private LoRa networks, suitable for remote monitoring, outdoor exploration, and emergency communication scenarios. In hardware design, Unit C6L offers 2x RP-SMA antenna interfaces, respectively for **2.4 GHz Wi-Fi 6** and **LoRa** communication, ensuring scalability and stability of wireless performance. It also integrates **over-voltage protection chip AW32901FCR** to enhance device stability. With HY2.0-4P expansion interface and LEGO-compatible mounting holes, users can easily expand sensors or modules to quickly build more application scenarios.

Tutorial



Arduino IDE

This tutorial explains how to program and control Unit C6L using Arduino IDE.



Meshtastic Tutorial

This tutorial introduces how to use Meshtastic with Unit C6L.

Features

- Supports Meshtastic
- ESP32-C6 core controller
- 2.4 GHz Wi-Fi 6
- SX1262 LoRa transceiver
- LoRa operating frequency: 868 ~ 923 MHz
- Programmable RGB LED WS2812C
- SSD1306 0.66" OLED monochrome display, resolution 64x48
- Human-machine interaction:
 - Buzzer
 - User button
- Integrated over-voltage protection chip AW32901FCR
- HY2.0-4P expansion interface
- LEGO-compatible mounting holes

Includes

- 1 x Unit C6L
- 1 x 2.4 GHz RP-SMA whip antenna
- 1 x 868 MHz RP-SMA whip antenna
- 1 x HY2.0-4P Grove Cable (20cm)

Applications

- Smart agriculture
- Industrial monitoring
- Outdoor communication

Specifications

Specification	Parameter
SoC	ESP32-C6 (RISC-V 32-bit high-performance single-core processor 160MHz + RISC-V 32-bit low-power single-core processor 20 MHz)
Flash	16MB
Display	SSD1306 0.66" OLED monochrome screen, resolution 64 x 48
LoRa	SX1262
Antenna Specs	<p>Wi-Fi Antenna: length 84mm, RP-SMA connector (female thread, female pin), operating frequency 2.4 GHz, gain 3dBi</p> <p>LoRa Antenna: length 108mm, RP-SMA connector (female thread, female pin), operating frequency 868 MHz, gain 3dBi</p>
Max LoRa TX Power	+22dBm
Power Consumption	<p>Sleep mode (HY2.0-4P powered): 696.86uA</p> <p>Sleep mode (USB Type-C powered): 866.42uA</p> <p>LoRa RX standby (USB Type-C powered): 85.18mA</p> <p>LoRa max power continuous TX (USB Type-C powered): 80.02mA</p>
LoRa RX Sensitivity	-147 dBm (LoRa low data rate mode)
Power Input	DC 5V (USB Type-C)
RGB LED	1x WS2812C
Product Size	62.0 x 24.0 x 8.0mm (excluding antenna)
Product Weight	13.6g (excluding antenna)
Package Size	104.0 x 44.0 x 12.5mm
Gross Weight	38.6g

Learn

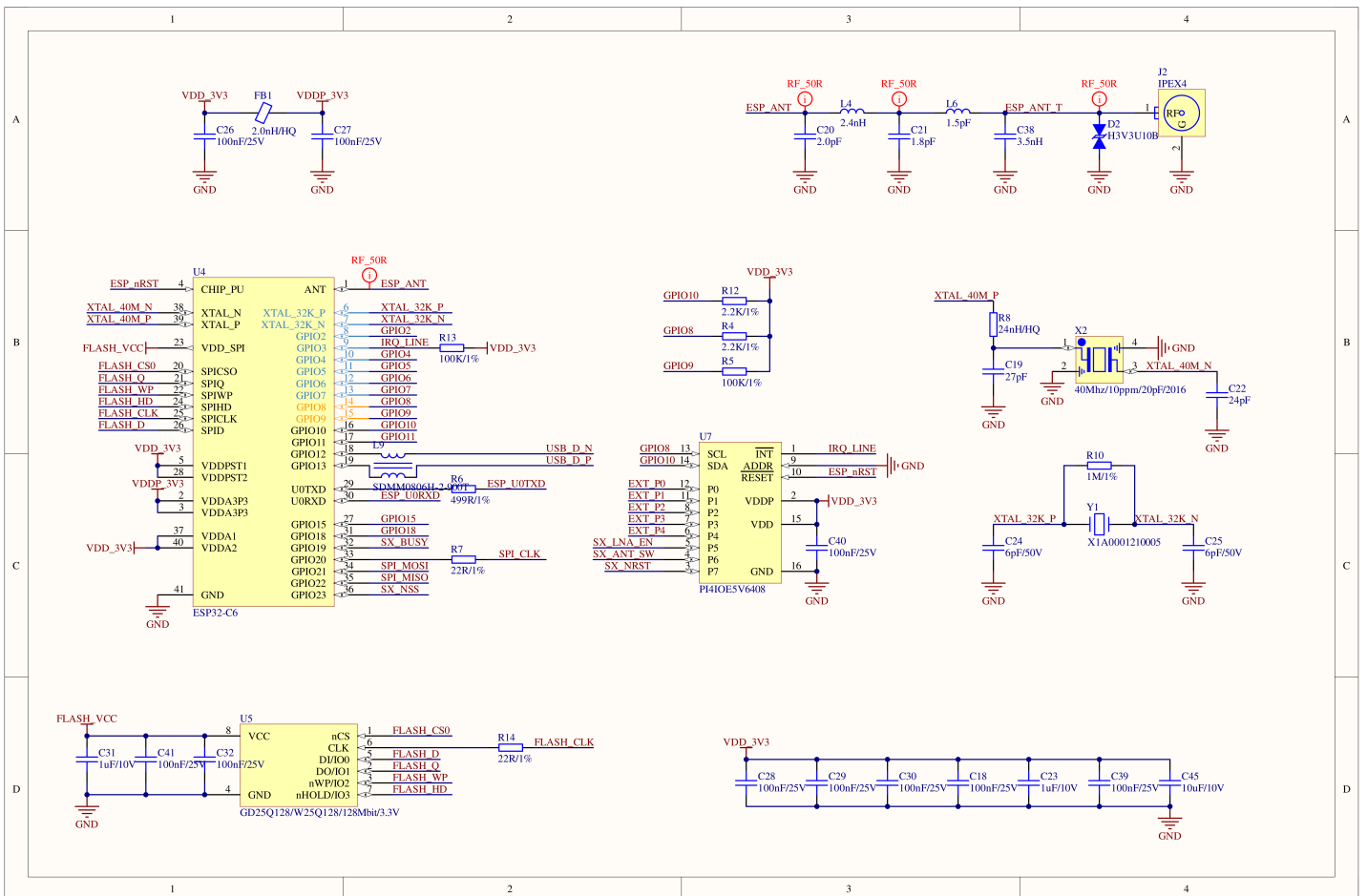
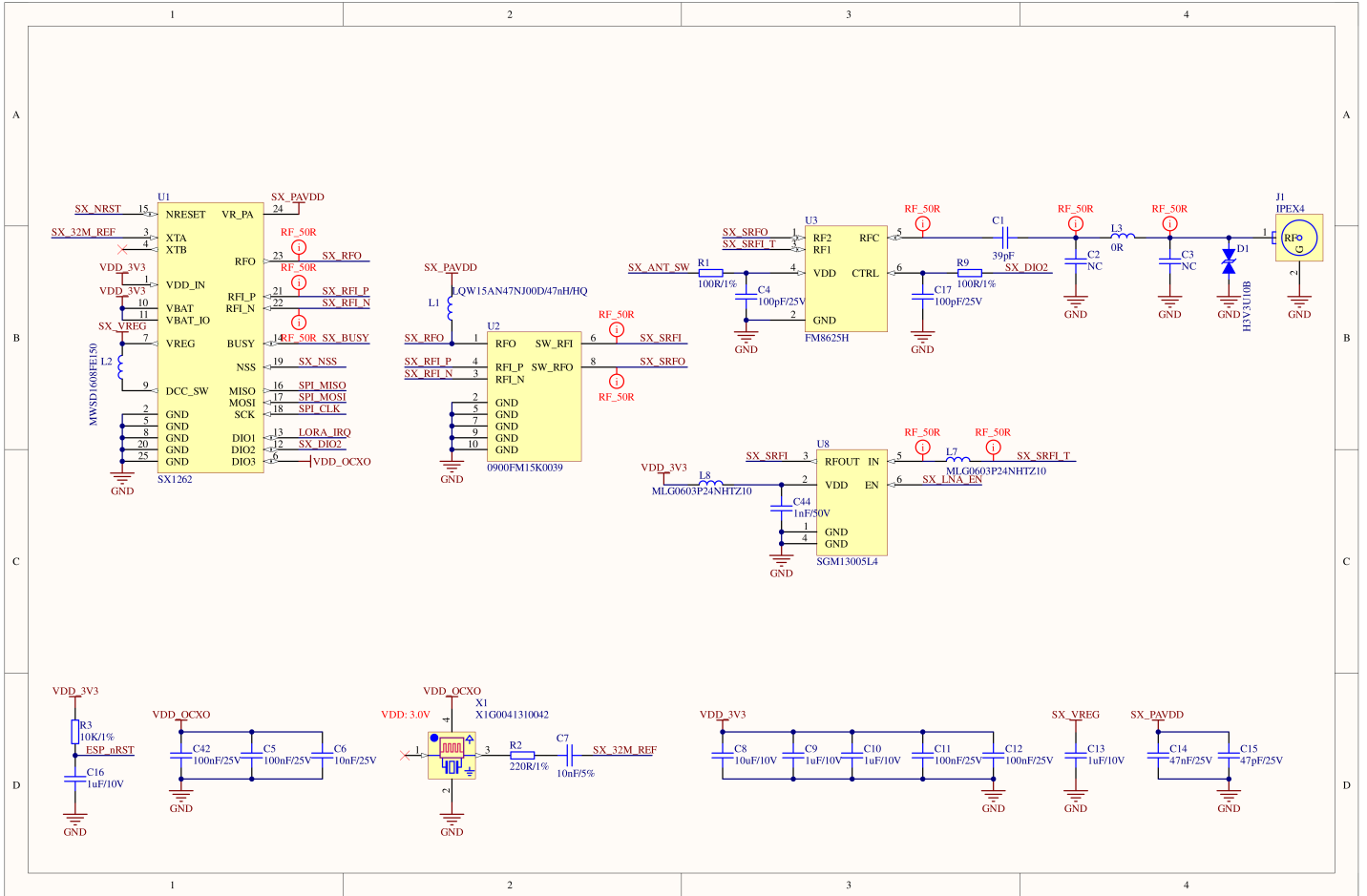
Download Mode

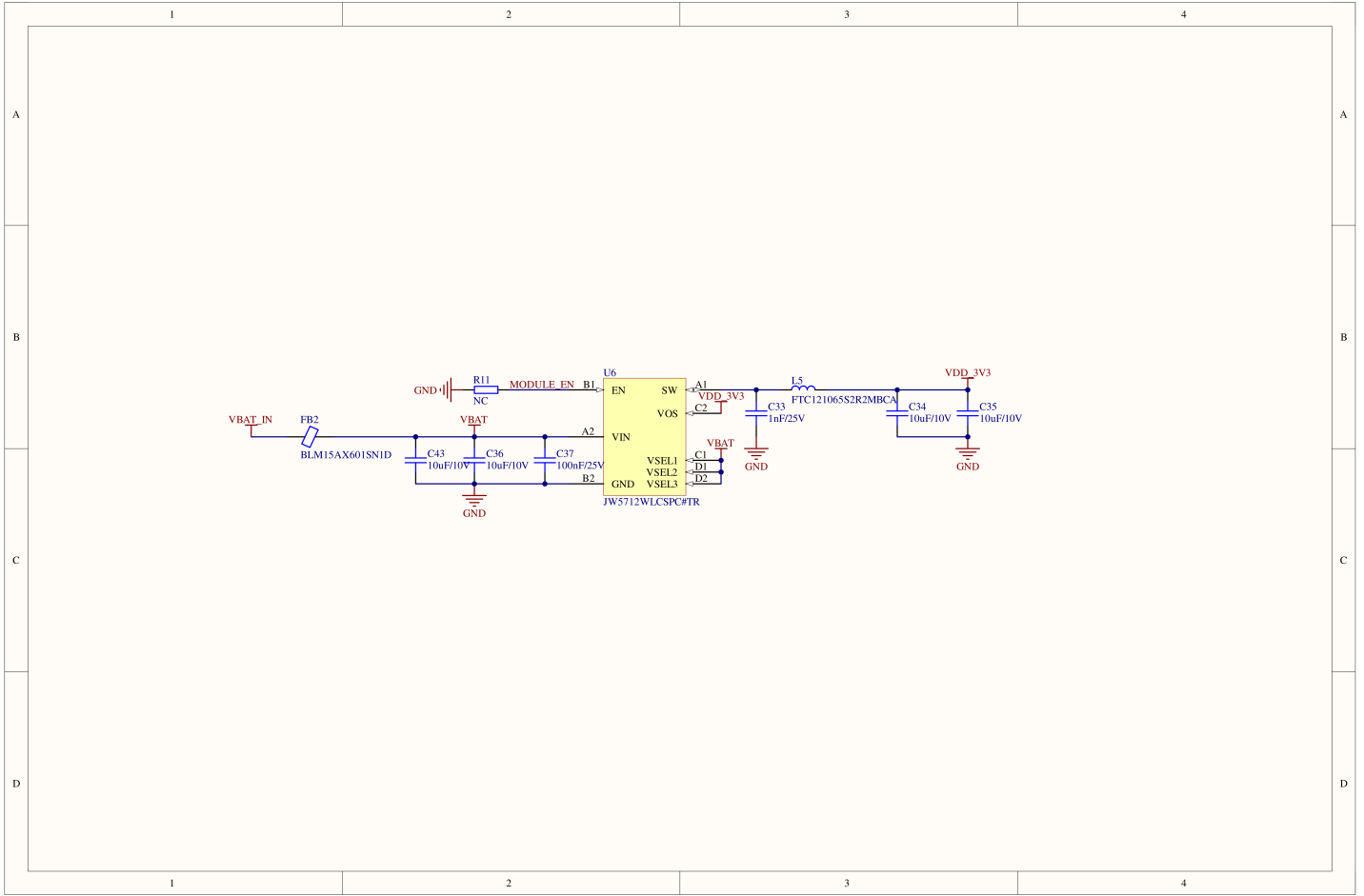
To flash firmware, connect the device to a computer via a USB Type-C data cable, press and hold the side reset button for 3 seconds until the green light turns red. At this point, the device enters download mode and is ready for flashing.

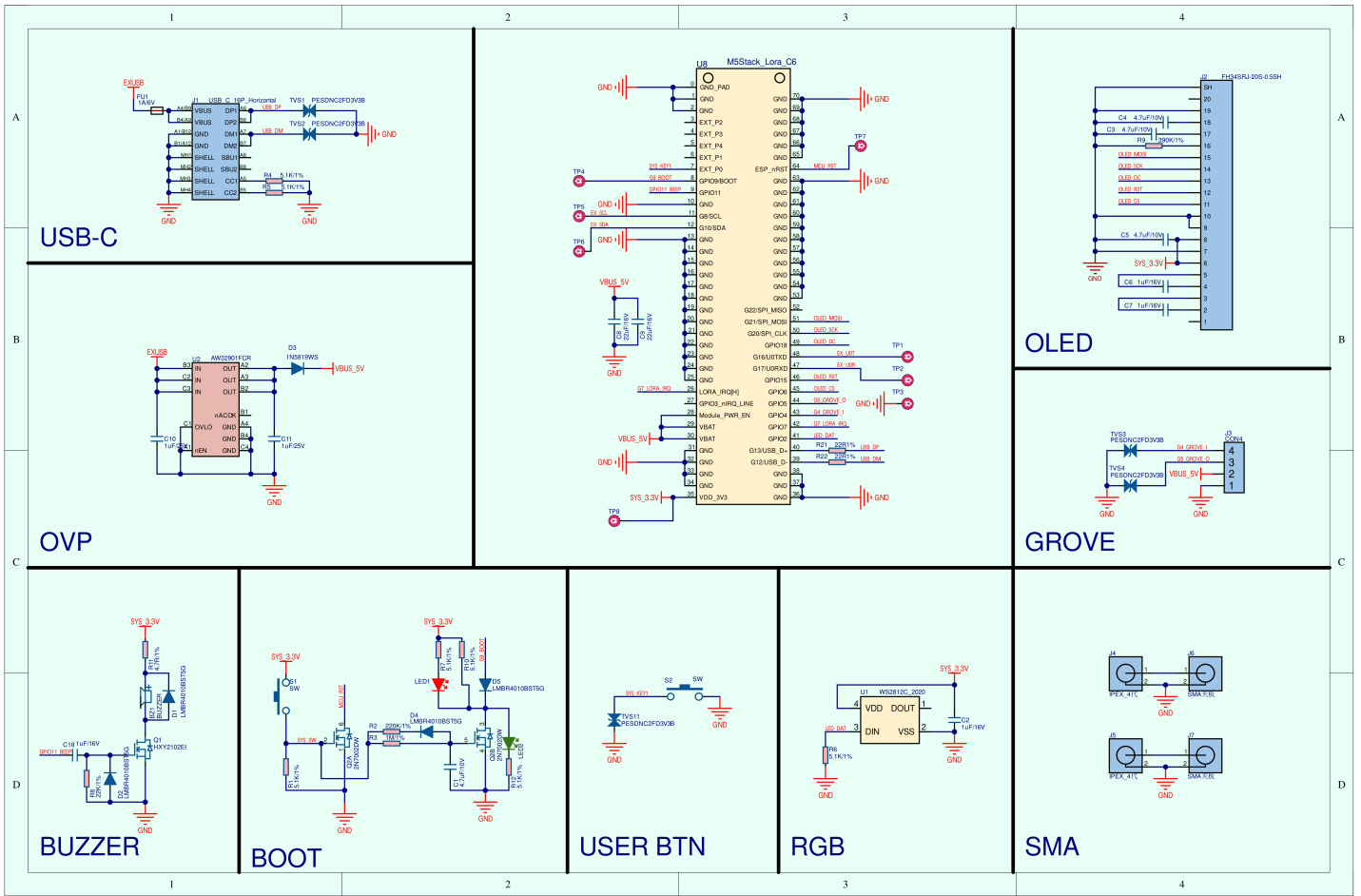


| Schematics

- [Unit C6L Schematics PDF](#)
- [Stamp C6LoRa Schematics PDF](#)







PinMap

Stamp C6LoRa

ESP32-C6	G21	G22	G20	G23	G19	G7
SX1262	MOSI	MISO	SCK	CS	BUSY	IRQ
ESP32-C6	G8	G10	G3	ESP_RST		
PI4IOE5V6408	SCL	SDA	INT	RST		
PI4IOE5V6408	E0.P5	E0.P6	E0.P7			
SX1262	SX_LNA_EN	SX_ANT_SW	SX_NRST			

The following steps are required for LoRa module initialization:

- Reset the LoRa module: Set SX_NRST low, hold for 100 ms, then set high.
- Enable the RF antenna switch: Set SX_ANT_SW high.
- Enable the LNA chip: Set SX_LNA_EN high.

OLED

ESP32-C6	G6	G21	G20	G18	G15
SSD1306	CS	MOSI	SCK	DC	RST

HMI

ESP32-C6	G11	G2
Buzzer	BEEP	
RGB LED		LED_DAT

PI4IOE5V6408	P0
SYS_KEY1	INPUT

USB

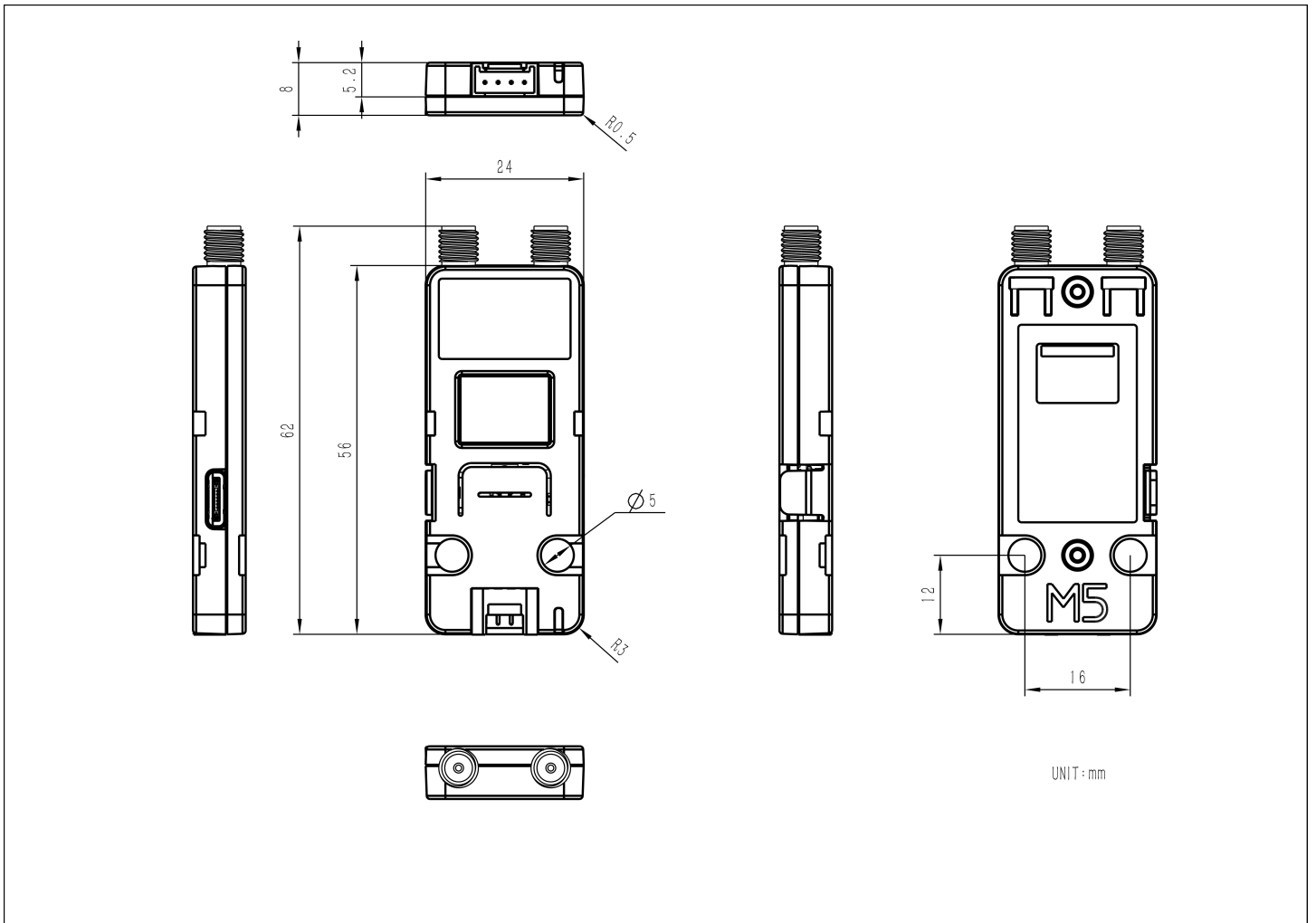
ESP32-C6	G13	G12
USB	USB_D+	USB_D-

HY2.0-4P

HY2.0-4P	Black	Red	Yellow	White
PORT.A	GND	5V	G5	G4

Model Size

- [Unit C6L Model Size PDF](#)



Datasheets

- [SX1262](#)
- [ESP32-C6](#)

Softwares

Quick Start

- [Use Meshtastic via Unit C6L](#)

Arduino

- [Unit C6L Arduino Quick Start](#)

PlatformIO

```
[env:m5stack-unitc6l]
platform = https://github.com/pioarduino/platform-esp8266/archive/refs/heads/develop.zip
board = esp32-c6-devkitc-1
framework = arduino
upload_speed = 1500000
monitor_speed = 115200
build_flags =
  -D ARDUINO_USB_MODE=1
  -D ARDUINO_USB_CDC_ON_BOOT=1
  -D CONFIG_ARDUHAL_LOG_COLORS=1
  -DCORE_DEBUG_LEVEL=5
lib_deps =
  M5Unified=https://github.com/m5stack/M5Unified
```

EasyLoader

Easyloader	Download	Note
Unit C6L User Demo Easyloader	download	/

Note

Please notice that this firmware isn't the newest version, mqtt and webserver was disabled by default. This firmware is for testing whether the Unit C6L is working correctly. If you need to use Meshtastic, please go to the official website to flash the latest version of the firmware: <https://flasher.meshtastic.org/>

Video

- Unit C6L Product Introduction and Function Demonstration

[U202_Unit-C6L-video.mp4](#)