GPS

SKU:U032

Description

GPS is an M5Stack Unit that integrates a **AT6558** navigation chip and a **MAX2659** amplification chip which is used for amplifying the antenna signal.

AT6558 is an high performance chip that supports many types of satellite navigation systems, able to receive satellite signals on 56 channels GNSS signal from 6 satellite navigation system, joint location, navigation, timing and more.

The module is able to obtain accurate global location information, quick and accurate positioning for anywhere in the city, in the canyon, under the overhead and inside the car.

The module can be widely used in vehicle monitoring, bus reporting, car navigation, onboard navigation, notebook navigation and other products.

You can plug it into port C on M5core via GROVE cable, which is a standard UART interface.

UART settings :
- Baudrate(**default: 9600bps**)
- Start bits(1 bit)
- Stop bits(1 bit)
- Parity(no)

Product Features

- Support single system positioning of BDS/GPS/GLONASS satellite navigation systems, or multi-system joint positioning in any combination
- Support D-GNSS differential positioning
- Two Lego-compatible holes

Includes

- 1x GPS Unit
- 1x Grove Cable

Applications

- Vehicle positioning and navigation
- Smart law enforcement positioning

Specification

Resources	Parameter
Positioning accuracy	2.5m
Channel	56
Positioning update frequency	1-10Hz
Maximum height	1800m
Maximum speed	515m/s
Maximum acceleration	<= 4g
Sensitivity	Tracking: -162dBm，Capture: -148dBm，Cold start: -146dBm
Start Time	Cold start: 35 seconds，Warm start: 32 seconds，Hot start: 1 second
Operating temperature	-40°C - 85°C
Net weight	13g
Gross weight	26g
Product Size	48*24*8mm
Package Size	67*53*12mm

Related Links

- **Datasheet** - AT6558 - MAX2659

- **TinyGPS++ library**

- **CASIC Multimode satellite navigation receiver protocol specification**

- **GnssToolKit3(Windows Version)**

EasyLoader

download EasyLoader

1.EasyLoader is a simple and fast program burner. Every product page in EasyLoader provides a product-related case program. It can be burned to the master through simple steps, and a series of function verification can be performed. .

- After downloading the software, double-click to run the application, connect the M5 device to the computer through the data cable, select the port parameters, click **"Burn"** to start burning. **For M5StickC burning, please Set the baud rate to 750000 or 115200**

- Currently EasyLoader is only suitable for Windows operating system, compatible with M5 system adopts ESP32 as the control core host. Before installing for M5Core, you need to install CP210X driver (you do not need to install with M5StickC as controller)Click here to view the driver installation tutorial

Schematic

▫

PinMap

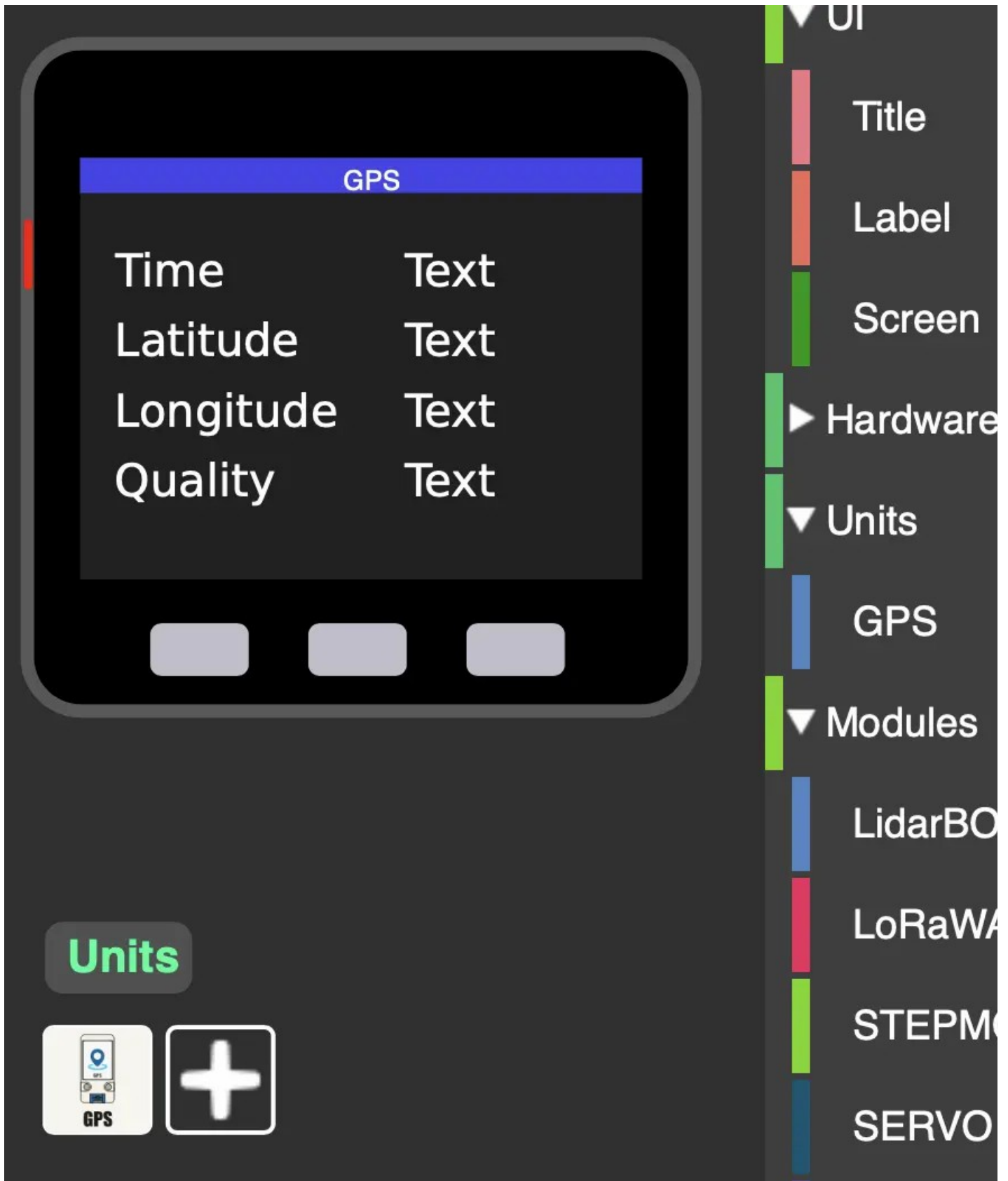| M5Core(GROVE C)	U2RXD(GPIO16)	U2TXD(GPIO17)	5V	GND
GPS Unit	Signal Transmitter(TXD)	Signal Receiver(RXD)	5V	GND

Example

1. Arduino

To get the complete code, please click here

2. UIFlow

- Click here to download the UIFlow example

UI
- Title
- Label
- Screen

Hardware ▶

Units ▼
- GPS

Modules ▼
- LidarBO
- LoRaWA
- STEPM
- SERVO

GPS

Time	Text
Latitude	Text
Longitude	Text
Quality	Text

Units

GPS

Analysis:

$GNRMC,063012.000,A,2258.11953,N,11395.35722,E,0.69,171.74,240419,,,A*7A

Indicates that the positioning information is UTC time is 06:30:12, north latitude 22.58119°, east longitude 113.95357°, date is April 24, 2019

22.58119,113.95357

22°34'52.3"N 113°57'12.9"E

22.581190, 113.953570

Directions   Save   Nearby   Send to your phone   Share

East Block, Dingxin Mansion, XiLi, Nanshan Qu, Shenzhen Shi, Guangdong Sheng, China

HXJ3+FC Nanshan, Shenzhen, Guangdong, China

Add a missing place

Add your business

Add a label

32.2.14.1 Recommended Minimum data

Message	**RMC**
Description	**Recommended Minimum data**
Firmware	
Type	Output Message
Comment	**The output of this message is dependent on the currently selected datum (default: WGS84)** The recommended minimum sentence defined by NMEA for GNSS system data.

	ID for CFG-MSG	Number of fields	
Message Info	0xF0 0x04	16	

Message Structure:

`$xxRMC,time,status,lat,NS,long,EW,spd,cog,date,mv,mvEW,posMode,navStatus*cs<CR><LF>`

Example:

`$GPRMC,083559.00,A,4717.11437,N,00833.91522,E,0.004,77.52,091202,,,A,V*57`

Field No.	Name	Unit	Format	Example	Description
0	xxRMC	-	string	$GPRMC	RMC Message ID (xx = current Talker ID)
1	time	-	hhmmss.ss	083559.00	UTC time, see note on UTC representation
2	status	-	character	A	Status, V = Navigation receiver warning, A = Data valid, see position fix flags description
3	lat	-	ddmm.mmmmm	4717.11437	Latitude (degrees & minutes), see format description
4	NS	-	character	N	North/South indicator
5	long	-	dddmm.mmmmm	00833.91522	Longitude (degrees & minutes), see format description
6	EW	-	character	E	East/West indicator
7	spd	knots	numeric	0.004	Speed over ground
8	cog	degrees	numeric	77.52	Course over ground
9	date	-	ddmmyy	091202	Date in day, month, year format, see note on UTC representation
10	mv	degrees	numeric	-	Magnetic variation value. Only supported in ADR 4.10 and above.
11	mvEW	-	character	-	Magnetic variation E/W indicator. Only supported in ADR 4.10 and above.
12	posMode	-	character	A	Mode Indicator, see position fix flags description **NMEA v2.3 and above only**
13	navStatus	-	character	V	Navigational status indicator (V = Equipment is not providing navigational status information) **NMEA v4.1 and above only**
14	cs	-	hexadecimal	*57	Checksum