S1
Wireless Communication Locator
Quick Start Guide

July. 2023

Revision History

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V1.00	New	July 2021

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Catalogue

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1. Introduction

This document describes how to operate and use S1 wireless communication locator, which can help customers quickly understand the use and test methods of S1 wireless communication locator, and understand the basic working mode.

2. Appearance and interface

This locator boasts an indicator light, a SIM card slot with micro-USB interface

The indicator light can display red or green

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The mode switch key allows you to change the positioning reporting interval and switch the device on or off
The Micro-USB interface is used for debugging and charging

The soft rubber plug on the outside to prevent dust and water stains

The slots on the both external sides of the locator can be used to fix the locator with the backpack strap/pet collar/small wristband

※ Please use the NB dedicated IoT card in the SIM card slot
※ Start after inserting the card, or sleep without the card

3. Basic functions and modes switch

The core function of S1 wireless communication locator is to report its position information to the server at different frequencies according to different modes.

This locator has a 5 modes in total, respectively:

Mode1: Working mode (high frequency reporting position data, once every 5 minutes by default)
Mode2: Idle mode (low frequency reporting position data, once every 10 minutes by default)
Mode3:SOS mode (UHF continuous reporting of position data, once every 3 minutes by default)
Mode4: Privacy mode (in the preset privacy time, no position data can be reported)
Mode5: Off mode

The S1 locator can automatically switch between Mode2 idle mode and Mode1 working mode, depending on whether it is currently moving.

When the time you go out, pick it up and go, without any additional operations required, the S1 locator will automatically switch from Mode2 idle mode to Mode1 working mode to improve the reporting frequency.

When you go home, it can automatically switch from Mode1 working mode to Mode2 idle mode when you put down the S1 locator, can also reduce the reporting frequency to save power, reduce charging frequency, and satisfy the use experience.

When you encounter danger or need ultra-high frequency(UHF) reporting outside, tap the key to release, and then press immediately for three seconds, and then SOS mode is opened. At the same time, the ultra-high frequency positioning information will be reported, and continue to connect with the server. When connecting to the third-party server, the server can initiate the query of positioning data at any time in this mode.

The privacy mode time period can be preset by connecting the computer, and will not be reported during this time period to protect the privacy of customers.

The detailed switching of each mode is as follows:

Current mode Switch mode	Mode 1: Working mode	Mode 2: Idle mode	Mode 3: SOS mode	Mode 4: Privacy mode	Mode 5: Off mode
Mode 1: Working mode	- - -	Idle one reporting cycle and don't trigger the heliometer,	Click once to activate, then press	After the report completed, the current time is privacy time	Press for 6 seconds, still will turn to Mode 5 after reset

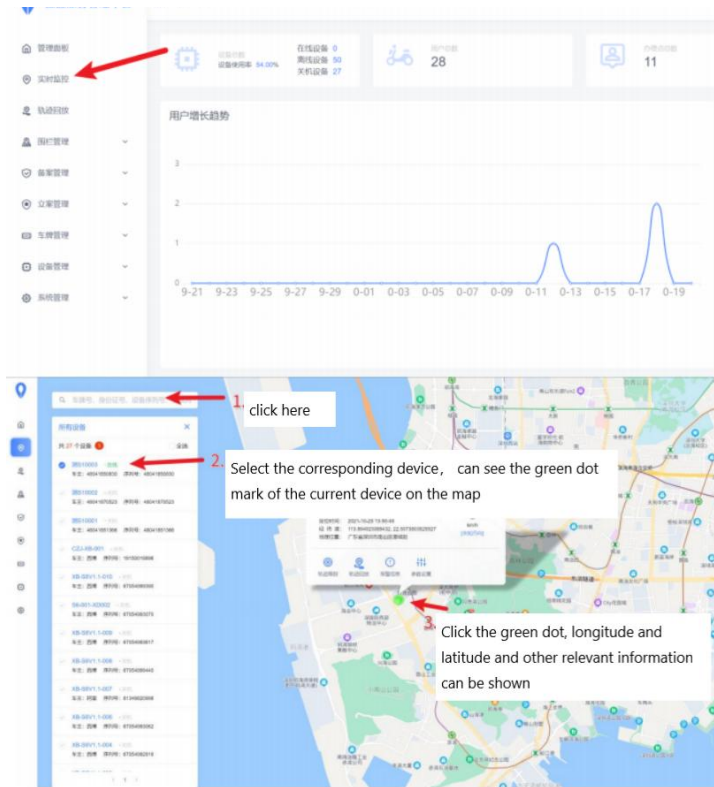Focus on Precise Space-time, Assist in Smart Service Worldwide

		will turn toMode 2 automatically	immediately for 3 seconds		
Mode 2: Idle mode	Shaking will trigger the gyroscope, will switch to mode 1 after reported	– – –	Click once to activate, then press immediately for 3 seconds	After the report completed, the current time is privacy time	Press for 6 seconds, still will turn to Mode 5 after reset
Mode 3: SOS mode	Click Activate, then press immediately for 3 seconds	– – –	Press for 6 seconds, still will turn to Mode 3 after reset	After the report completed, the current time is privacy time	Only after exit the SOS mode, can the device be off
Mode 4: Privacy mode	– – –	Exit from the private time slot, will turn to Mode 2 automatically	Click once to activate, then press immediately for 3 seconds	– – –	Press for 6 seconds, still will turn to Mode 5 after reset
Mode 5: Off mode	Press for 6 seconds, when it's on will turn mode 1	– – –	Click once to activate, then press immediately for 3 seconds	– – –	– – –

※ During the S1 locator in sleep state, if do not press 3 seconds to switch mode immediately after activating, it will be judged as a mistouch and it will continue to be sleep.

4. Simple Soup Spoon Server display query

Server address: http://ebike.xbteek.com/login
If the S1 locator is not disconnected within a short period of time after it is reported, you can view the current position of the S1 locator through real-time monitoring.

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1. click here

2. Select the corresponding device, can see the green dot mark of the current device on the map

3. Click the green dot, longitude and latitude and other relevant information can be shown

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Through the track playback function, you can query the track of a past locator for a period of time.
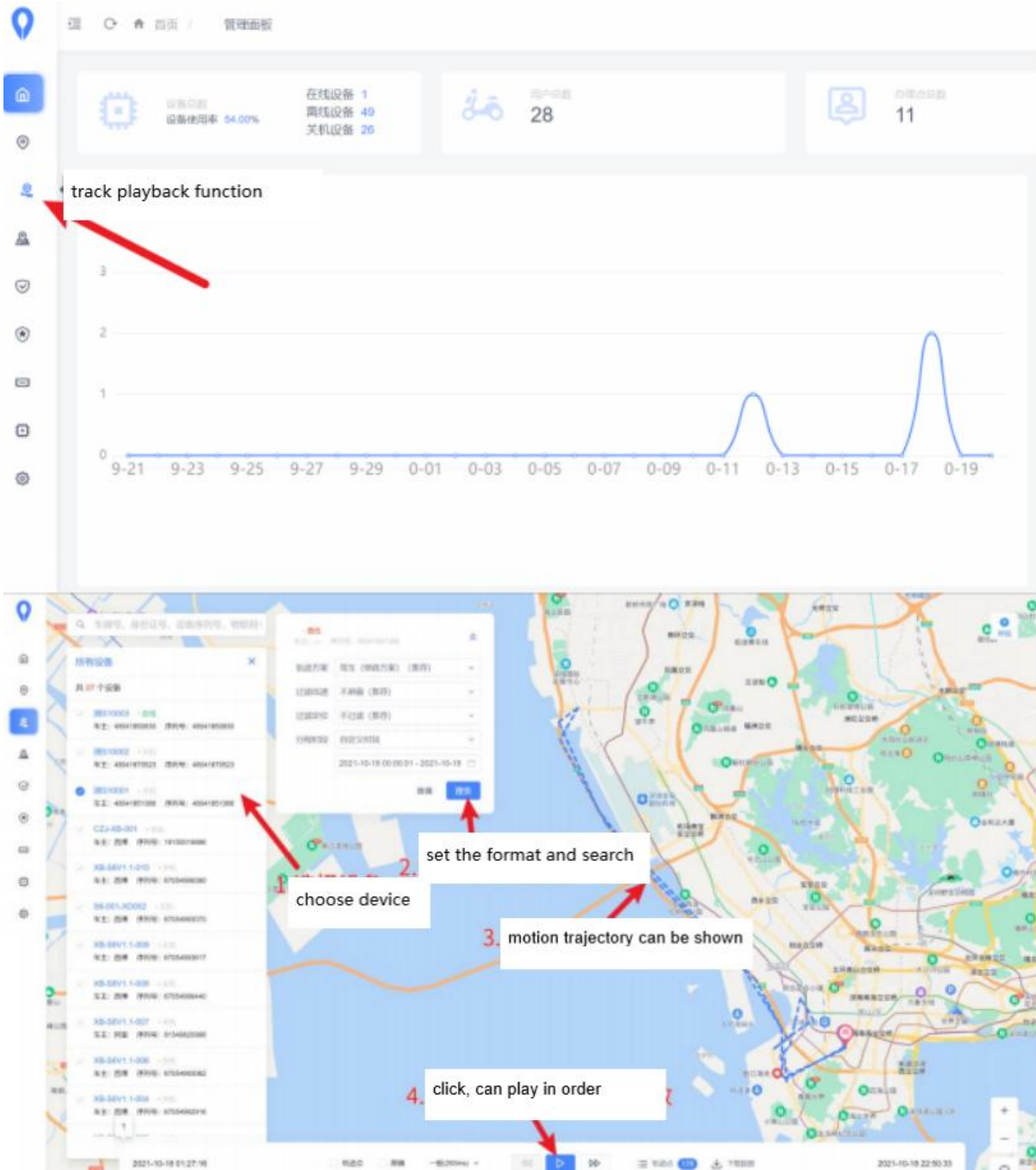
5. Indicator light status description

Priority 1				
	On charge	The red light keeps on		Display while charging
	Fully charged	The green light keeps on		
	Lack of power	The red light keeps on		Display while not charging:
Priority 2				
	Red light	Mode 1	Out of Network: 5 flashes every 5s	-display while reporting
		Mode 2	Connected Network: 1 flash every 5s	
		Model 3	Out of Network: 5 flashes every 1s	-not display while sleeping
			Connected Network 1 flash every 1s	
	Green light	GPS positioning successfully	1 flash every 1s	

The S1 locator will give priority to display indicator light information of charging.

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6. Debugging Instructions

S1 positioning can connect to the computer, modify the reporting interval of different modes through the way of AT instruction, set the privacy time, and also directly modify the address reported to the server, connect to the personal server.

6.1 Connect with S1 locator using sscom

Use the micro USB data cable to connect the computer to the locator, right-click the WIN logo key in the lower left corner, open the device manager and confirm that the device has been identified in < Port >, if not, you need to install the CP210X USB-to-conversion serial chip driver.
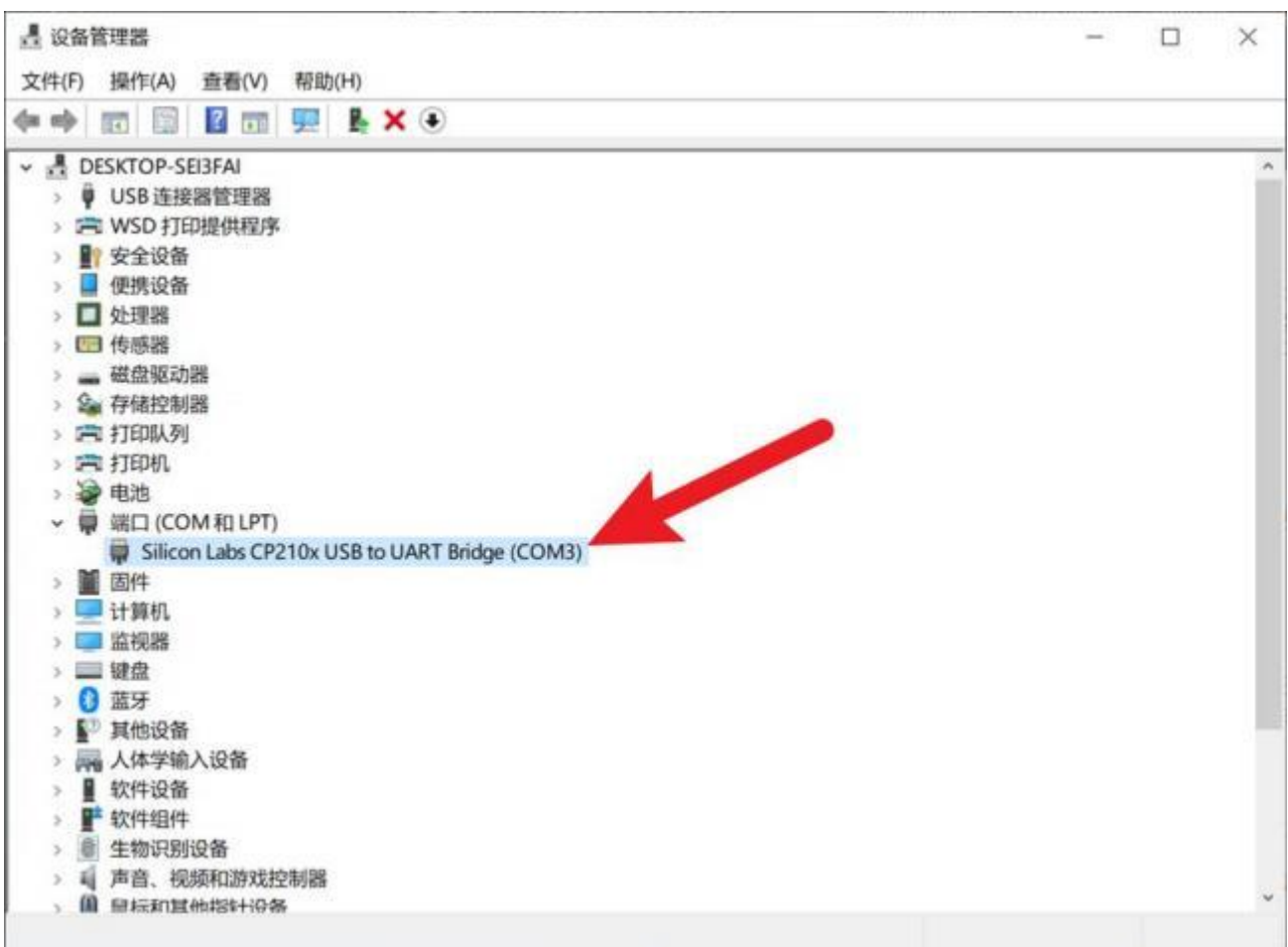
Start the sscom serial port debugging assistant and perform the following configurations.
The official download address: http://www.daxia.com/download/sscom.rar

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1, Select the Port Number; the COM port serial number may be different, but the following text is always Silicon Labs CP210X

3, tick these two

2, the baud rate choose 9600

4, Click to open the serial port
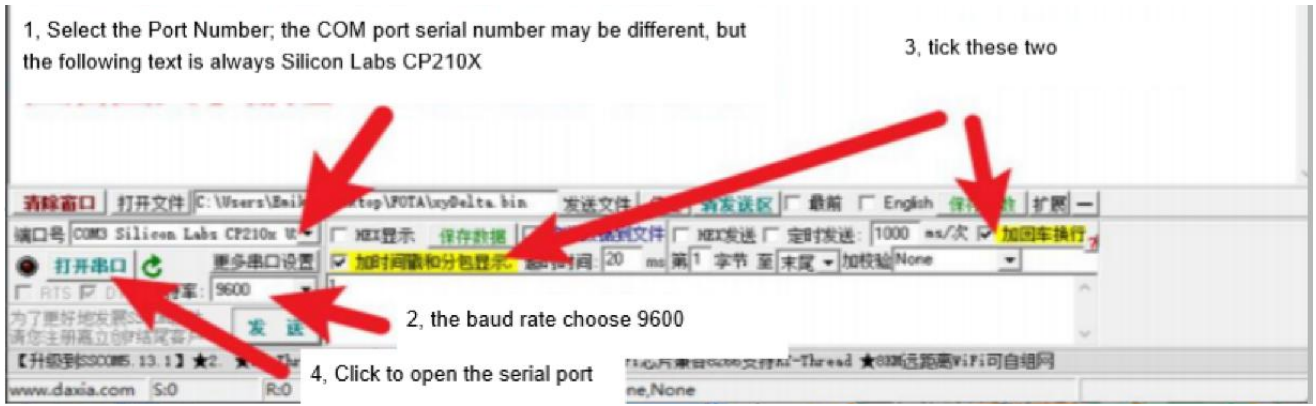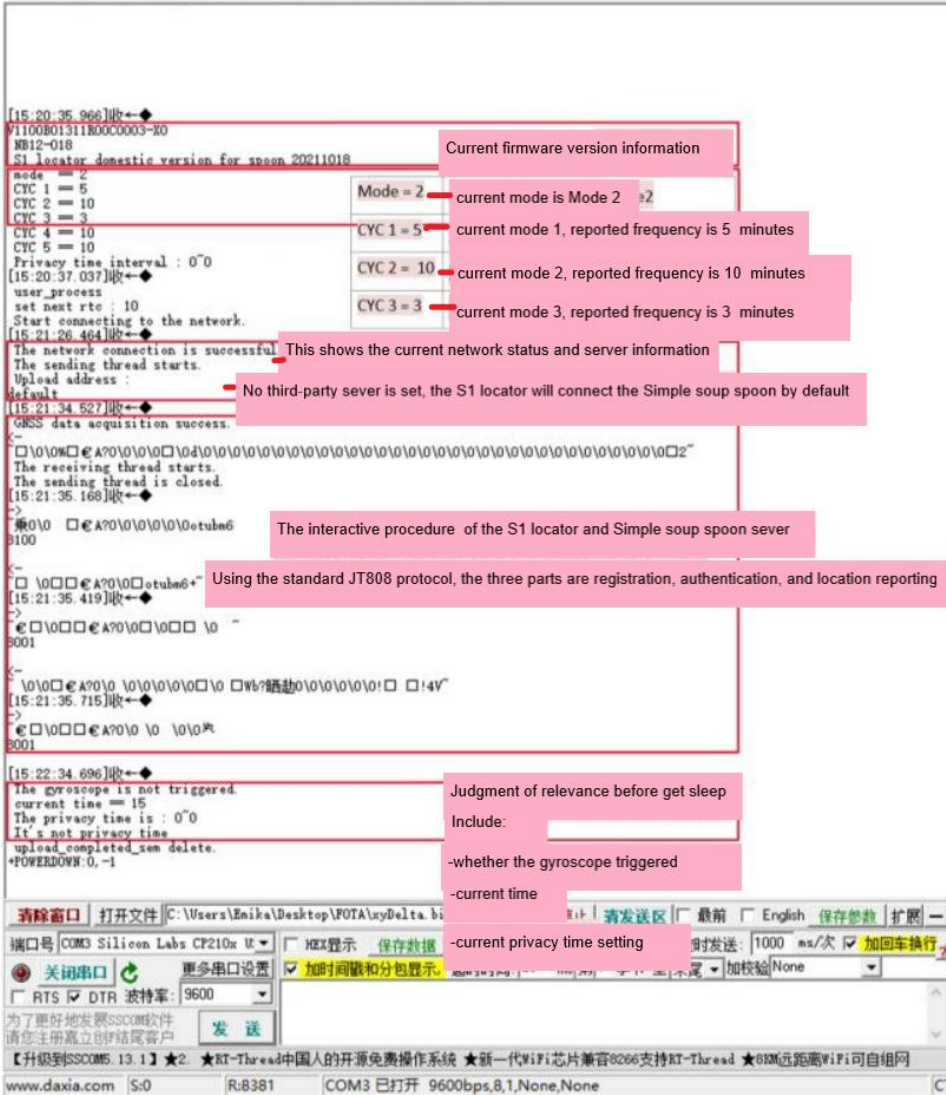
6.2 Basic Reporting Process

The following shows a basic escalation process:

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SSCOM V5.13.1 串口/网络数据调试器,作者:大虾丁丁,2618058@qq.com. QQ群: 52502449(最新版本)

通讯端口　串口设置　显示　发送　多字符串　小工具　帮助　联系作者

```
[15:20:35.966]收←◆
V1100B013311R00C0003-X0
NB12-018
S1 locator domestic version for spoon 20211018
mode = 2
CYC 1 = 5
CYC 2 = 10
CYC 3 = 3
CYC 4 = 10
CYC 5 = 10
Privacy time interval : 0~0
[15:20:37.037]收←◆
user_process
set next rtc : 10
Start connecting to the network.
[15:21:26.464]收←◆
The network connection is successful.
The sending thread starts.
Upload address :
Default
[15:21:34.527]收←◆
GNSS data acquisition success.

□\0\0%□€A?0\0\0□\0d\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0□2"
The receiving thread starts.
The sending is closed.
[15:21:35.168]收←◆
→)
乘0\0  □€A?0\0\0\0\0\0otubm6
3100

←
□ \0□□€A?0\0□otubm6+"
[15:21:35.419]收←◆
→)
€□\0□□€A?0\0□\0□□ \0  "
8001

←
\0\0□€A?0\0  \0\0\0\0\0\0□\0 □Wb?晒赵0\0\0\0\0\0!□ □!4V"
[15:21:35.715]收←◆
→)
€□\0□□€A?0\0  \0  \0\0典
8001

[15:22:34.696]收←◆
The gyroscope is not triggered.
current time = 15
The privacy time is : 0~0
It's not privacy time
upload_completed_sem delete.
*POWERDOWN:0,-1
```

Current firmware version information

Mode = 2 — current mode is Mode 2

CYC 1 = 5 — current mode 1, reported frequency is 5 minutes

CYC 2 = 10 — current mode 2, reported frequency is 10 minutes

CYC 3 = 3 — current mode 3, reported frequency is 3 minutes

This shows the current network status and server information

No third-party sever is set, the S1 locator will connect the Simple soup spoon by default

The interactive procedure of the S1 locator and Simple soup spoon sever

Using the standard JT808 protocol, the three parts are registration, authentication, and location reporting

Judgment of relevance before get sleep
Include:
-whether the gyroscope triggered
-current time
-current privacy time setting

清除窗口　打开文件 C:\Users\Emika\Desktop\FOTA\xyDelta.bi　　清发送区 □ 最前 □ English 保存参数 扩展 ─

端口号 COM3 Silicon Labs CP210x U ▼ | □ HEX显示 保存数据　□加时间戳和分包显示.　　时发送: 1000 ms/次 ☑ 加回车换行 ─
● 关闭串口 ↻ 　更多串口设置 ☑ 加时间戳和分包显示.　　　　　　　　　加校验 None ▼
□ RTS ☑ DTR 波特率:9600 ▼
为了更好地发展SSCOM软件　发送
请您注册并加高立创结尾客户

【升级到SSCOM5.13.1】★2. ★RT-Thread中国人的开源免费操作系统 ★新一代WiFi芯片兼容8266支持RT-Thread ★8KM远距离WiFi可自组网

www.daxia.com S:0　　R:8381　　COM3 已打开 9600bps,8,1,None,None　　　　CTS

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The detailed logic diagram of S1 locator is as follows:
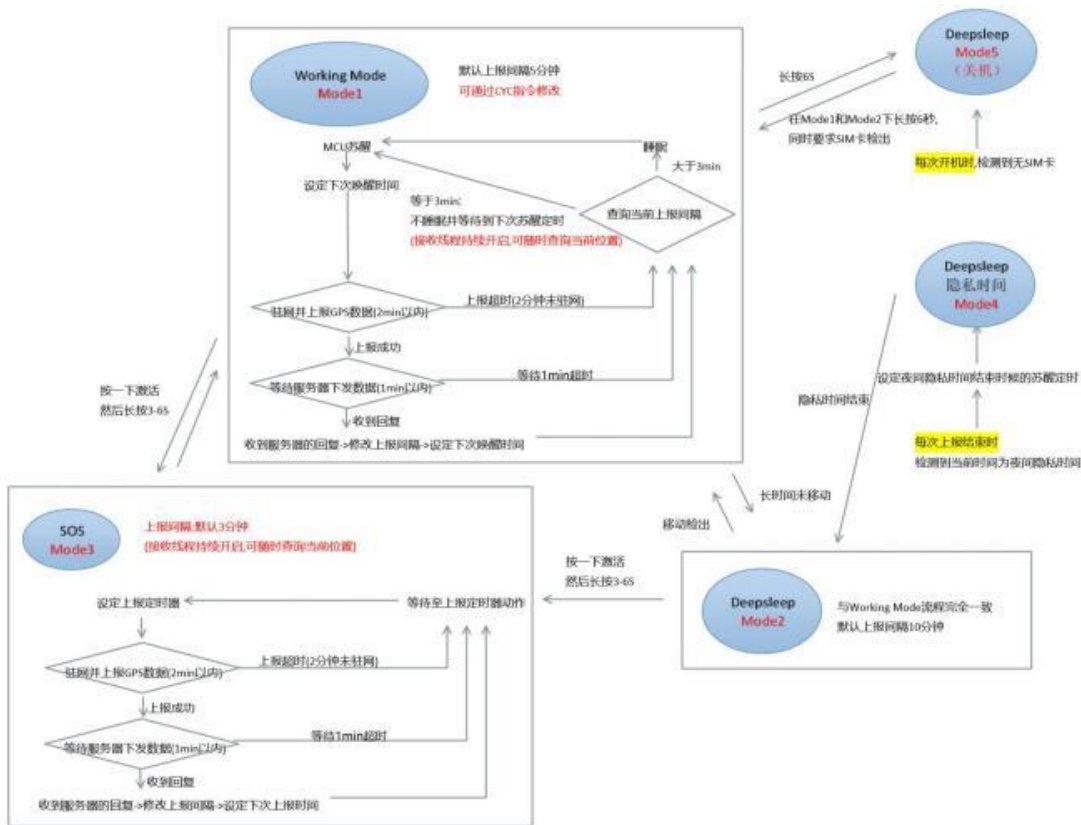
Mode1/2/3, the minimum interval can be set to 1min, the setting interval is less than or equal to 3min will not sleep.

6.3 AT instruction

The S1 locator can modify the setup/test function by the following AT instructions.

1. Query the reporting interval CYC	AT+GETCYC
	The CYC4 and CYC5 are meaningless, without actual call
2. Set the reporting interval and update it	The AT + SETCYC = 5, 2, 3
	As above command, set: The mode1 Report interval of 5 minutes The mode2 report interval is 2 minutes The mode3 report interval is 3 minutes
3 Testing gyroscope	AT+TESTGYRO

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	Used to test if the gyroscope is functioning properly
	If a gyroscope trigger is detected, the gyroscope will be cleared
	Prompt if the gyroscope is not detected to be triggered
	(General testing will be done by shaking the locator a few times and clicking once)
	Another: If it does not shake, it also continues to display the gyroscope triggered, then it is abnormal
4 Set the privacy time directly	AT + SETPT = 20, 22
	With the above command, set the privacy time to 20:00-22:00
5. Check the privacy time	AT+GETPT
6. Query the reporting server	AT+SIMPLEIPR
	Reply null when server is not set
7. Configure the reporting server	The AT + SIMPLEIPW = 8.135.32.130:9999
	Set the IP and port of the reporting server as above
	Empty the escalation server when "AT+SIMPLEIPW=" is sent
8. Query the current firmware version	AT+SIMPLEVER

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7. Connect to an external third-party server

This scheme is only used to experience the connection between S1 locator and the customer's own server at zero cost, so as to facilitate the customer to evaluate the feasibility of connecting S1 locator and the customer's own server. Due to the use of third-party software free service, the stability is not absolutely guaranteed.

S1 locator adopts JT808 protocol for location reporting. The standard process is: registration - > Authentication - > Upload positioning information. If the client server wants to connect, it can use the JT808 data format to reply, or after receiving the client registration information, it can use a simpler query way to query the current location information. The following will demonstrate the use of the query method

7.1 Using Peanut shell to build a simple server

Download the Network Debugging Assistant and open it
Address: http://www.cmsoft.cn/resource/102.html
To download the Peanut Shell app and open it, at the same time need to create an account on the website.
The address is https://hsk.oray.com
Peanut Shell with Network Debugging Assistant do the following settings:

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The mapping domain name and IP of Peanut Shell are as follows:

Send AT+SIMPLEIPW=XXXXXXXXXXX:XXXX to the locator by sscom
Where XXXX is the mapped domain name and IP of the peanut shell
Example: as shown above, you may need to sent via sscom AT + SIMPLEIPW = 2 d9718p353. zicp. VIP: 27761

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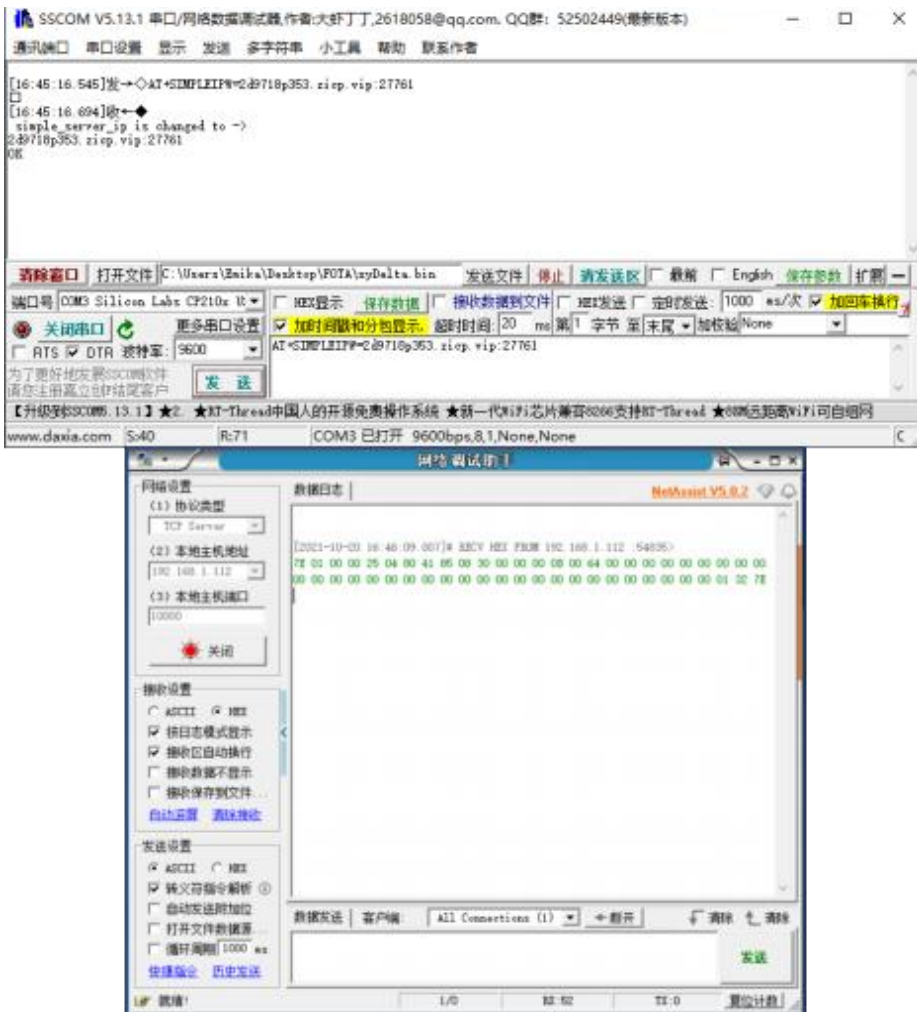
In this way, you can receive the registration information in JT808 format when the S1 locator report the position data.

Set both the receive and send Settings to ASCII, send CYC=0 to query the current location, and receive the location information when the locator is not asleep.

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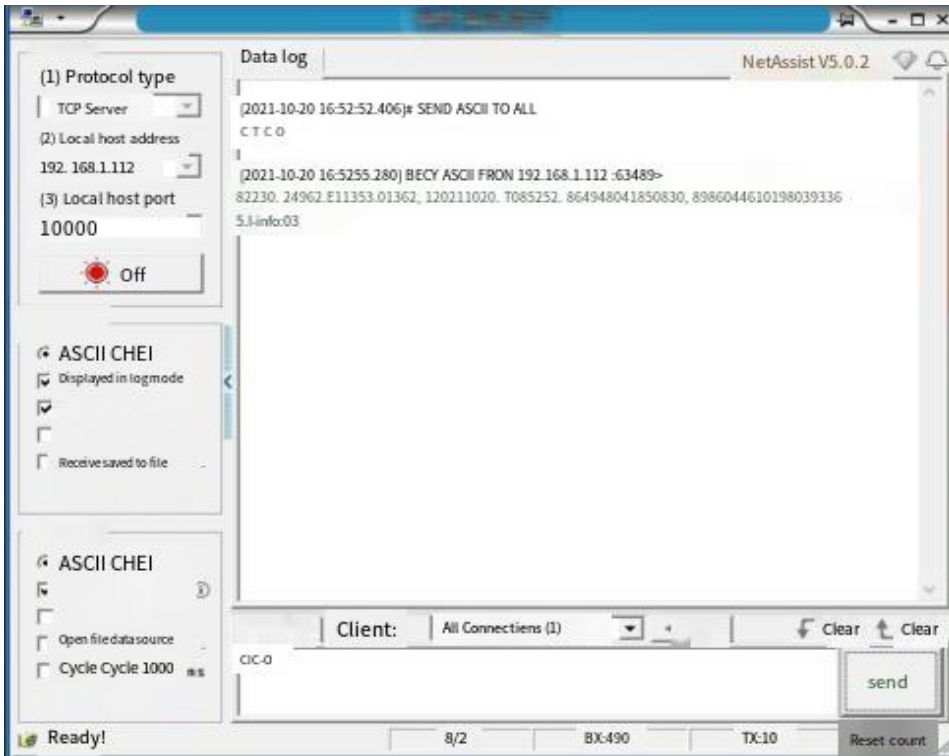
The reply format is:

Latitude Longitude Date Time S1 Locator IMEI   ICCID of the current SIM card
 status code

The tens digit of the status code indicates the power shortage flag bit, and the ones digit indicates the current Mode.

※ Due to the need of low power consumption,S1 locator will only wait for the server to issue instructions after reporting the registration information

※ The data sent is in WGS-84 coordinate system, it is recommended to use Google Maps to view

7.2 All commands can be delivered from the server side

1. Immediately reply to the current location	CYC=0
2. Set the current mode interval	CYC=3
	As shown above, set the current mode reporting interval to 3 minutes and set the interval to 1-1440 minutes
3. Restore the default interval of the current mode	CYC=1441
	When CYC is set over 1440 minutes The current mode reporting interval will revert to the default frequency
4. Set privacy time	PT = 10, 11

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	As instructed above, set Privacy time to 10 am -11 PM PT = Privacy time

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