APRS Tracker X1C3

Manual



X1C3 Tracker Multifunction Edition is a state-of-the-art embedded APRS tracking device designed for

the majority of HAM.

Basic features:

X1C3 is a professional APRS dual-segment station that uses standard APRS digital encoding to directly

locate each other directly via radio U/V signals.

X1C3, no mobile phone network needed, can be directly used for transmission and reception, widely

used in outdoor sports, rescue and other occasions.

Functions:

APRS Track

Support fixed station FIXED, sports SPORT, 2 site modes Support complete TRACK tracker, support intelligent, timing, PTT linkage, queue beacon Support beacon additional information, mileage, satellite number, voltage, temperature, air pressure, etc. Support mileage calculation, support accumulated mileage or automatically clear 0 Support for automatic icons (TRACK smart mode) Support GPS power saving mode (TRACK PTT linkage mode, TRACK timing mode)

Bluetooth

Built-in latest 2.0+4.0 dual-mode Bluetooth, compatible with Android, Apple Support Bluetooth output KISS hex, UI, GPWPL, KISS ASC, GS232B and other protocols Support Bluetooth output GPS data (GPRMC+GPGGA), support mixed output Support Bluetooth KISS data bidirectional transparent transmission Support Liuyun, APRSdroid, LOCUS, Ovi and other APP Support wireless Bluetooth setting parameters

APRS digipeater Support full DIGI repeater function, support custom repeater name, Support digipeater remote turn-off function

Remote Remote control peripheral module sensor input and relay telemetry control module

GPS/Beidou/GLONASS

Built-in high-performance GPS\Beidou\GLONASS multi-mode hybrid positioning engine

GPS/Track/DIGI/BT/USB

APRS algorithm Built-in advanced CMX hardware programming algorithm Built-in 8-level digital level adjuster (both transmitting and receiving)

Data analysis Built-in advanced algorithm to support rich data analysis Support heading, north position, relative motion position calculation Support Maidenhead grid positioning system Supports trigonometric calculations such as APRS distance, horizontal angle, and elevation angle Support automatic tracking control of G5500 aircraft, ships, etc.

Host

Support battery USB direct charging Built-in auxiliary sensors for temperature and voltage Support user independent firmware upgrade Support off-network use, no network, direct mutual positioning

software

Companion PC setup software (Chinese, English) (requires .NET 4.0)

CAUTION

Lithium batteries are not allowed to be placed in places exposed to high

temperatures.

1, Pay attention to the positive and negative of the battery, it is strictly prohibited to reverse, the reverse of the motherboard will be damaged.

2. Lithium batteries are forbidden to be placed in the car for high temperature exposure. For long-term storage and transportation, please unplug the battery.

3, GPS test, please go to the outdoor test.

4. The GPS signal is affected by the environment such as rain and fog weather and building signal reflection. The starting time is 1-5 minutes.

5. The APRS beacon will be transmitted when the GPS is locked.

6, the battery is lower than 3.05V will automatically shut down, protect the battery.

7, boot STU, MODE light flash white, the state red light flashes several times, indicating the power.

6 flashes, greater than 4.1V 100%

5 times flash, greater than 3.8V 80%

Flash 4 times, greater than 3.5V 60%

Flash 3 times, greater than 3.2V 40%

Flash 2 times, greater than 3.05V 20%

Flash 1 time, less than 3.05V 0% The motherboard automatically shuts down to protect the battery.

GPS/Track/DIGI/BT/USB

Motherboard hardware features:

Input working voltage: 3.3-5V

Standby current: less than 40uA

Emission current: about 0.35A

Motherboard size: 50*60mm

3.3V low voltage CPU STC8A8K

USB/TTL interface (9600 rate)

Support ISP firmware upgrade

Aluminum shell (black oxide treatment)

Motherboard resource support:

USB charging port, compatible with mobile phone jack Integrated power management, the motherboard can work at the same time when charging Built-in GPS module, GPS antenna Integrated expansion PTT\MIC\SP\GND headphone jack Integrated Kenwood K-type microphone connector Support hand microphone to manually transmit Tri-color LED indicator 1 touch function switch 1 touch power switch Built-in 2000MA lithium battery (with protection) Optional: DS18B2O temperature sensor

Front panel

CHG charging indicator:

Always on: Charging

Off: no charging or charging completed

USB charging socket:

Micro USB phone universal

3.5+2.5 headphone jack

Connect K-type hand microphone

RJ11 socket

Connecting the HT (cable sequence NC SP PTT GND MIC NC)

Rear panel

POWER Tap the power switch: recessed design to prevent false triggering.

Press to power on or off.

MODE touch function switch: recessed design to prevent false triggering.

Bluetooth switch

Each time you press it, cycle through:

STU status LED light (tri-color lights):

Blue flashing: GPS power is on, positioning

Steady blue: GPS positioning succeeded

Red: launch beacon

Green: Received beacon

GPS/Track/DIGI/BT/USB

The beacon will only be transmitted when the GPS is successfully locked.

STU status LED light other status:

1. When the motherboard is started, the LED is white for 1 second, indicating that the self-test is

completed.

2. Power on, red LED indicates power.

6 flashes, greater than 4.1V 100%

5 times flash, greater than 3.8V 80%

Flash 4 times, greater than 3.5V 60%

Flash 3 times, greater than 3.2V 40%

Flash 2 times, greater than 3.05V 20%

Flash 1 time, less than 3.05V 0% Replace the battery as soon as possible

Note: When the battery voltage is lower than 3.05V, the device can still work for a long time.

The actual minimum operating voltage of the motherboard is 3V, which is lower than 3.05V. The

measured battery voltage value will be incorrect, and the measured voltage will be constant at 3.0V.

Client setup program

The following interface is for reference only, the version is constantly updated, there may be

differences

Hardware connection:

- 1. Connect to X1C3 using the mobile phone USB data cable (supplied)
- 2. Open the 51 series general setting program and select the correct port number.
- 3. Read the settings or modify the settings, the host automatically saves.

GPS/Track/DIGI/BT/USB

Note: Setting parameters - pay attention to input method, you should use English input, try not to copy information from other documents, so as not to bring in hidden characters.Writing implied characters may also make the X1C board work abnormally.When the setting data is garbled, delete the garbled data and rewrite it.



Power on X1C3, plug in USB Cable



Fist time use, install USB CH340 driver

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255 CAL	新建文件夹						-	• 🗔	
 >>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>	APRS	APRS	APRS	APRS	APRS	APRS	APRS	ch341ser	
△ WPS网盘	51Series Setup	51Series Setup.exe	51Series Setup.pdb	51Series Setup.vsh	51Series Setup.vsh ost.exe	51Series Setup.vsh ost.exe	51Series Setup	CH341501	
第 年				OST	ostexe	ost.exe			
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▲ 齋乐	运行	51通用设	建软件						
1 计算机									
🏭 WIN7 (C:)									
main (D:)									
📖 軟件 (E:)									
🕞 软件 (F:)									
新加卷 (G:)									
可移动磁盘 (I:)									

Open APRS 51Series Setup program

APRS application program description

Note: The version is constantly updated, the interface is for reference only.

Note: The setup software supports all 51 series APRS devices, so some settings are not

valid for X1C3.

COM Port	Language	DIGI	Volume
COM2 - Serial OPEN Read Write Reset	🧿 中文 🔘 English	V WIDE1	TX -9.0dB -
ETUP ALL BH4TDV - 7 - 站点 SPORT - I GPS OM	Fixed Lat 3135.90 N	V WIDE2	RX -1.5dB -
eacon	Lon 12021.80 E	delay Os 💌	TX 2200
智能 OFF マ 同 队列 O S Pathl WIDE1 1 マ コモモカ ア 中日 20 S Path2 WIDE2 0 マ	高度 100 🛛 🕅	СН СНА 👻	OFF
⑦ 手动 ⑦ 定时 20 S Path2 WIDE2 0 ▼ ③ GPS省电(手动、定时)	No Rx Power OFF OFF -	Remote Sn 123456	BEEP V RX V TX
TT望时 350ms 、	Vol 1 Mic 1 GPRS for 51G3 TCP 202.141. V login sn V F Yaesu G5500 rotate 目标 START1 L R V 水平 000 仰角	176.2 1 ower APN Scontrol (USB-232B)	Frq 144.6400 4580 寫王
		▼ Rx 分析	about

Basic Settings

CALL sets the local call sign, default call sign NOCALL, numeric or English uppercase, up to 6 digits

SSID Beacon SSID, default 7, parameter range 0-15.

Site type:

SPORTS: Set this machine as a mobile site

Send various types of beacons using GPS real-time data

Use GPS real-time latitude and longitude data, calculate the relative distance from the other program, the north position, the relative direction, and so on.

FIXED: Set this device to a fixed site

Send various types of beacons using the fixed station latitude and longitude set

Use the fixed station latitude and longitude to calculate the relative distance to the other program, the north position, the relative direction, and so on.

GPS switch ON/OFF

If used at a fixed location, you can choose OFF to save battery.

GPS/Track/DIGI/BT/USB

COM Port	Language DIGI Volume
COM2 - Serial OPEN Read Write Reset	●中文 ○ English V WIDE1 TX -9.0dB -
SETUP CALL BH4TDV - 7 - 站点 SPORT - 《 GPS ON	Fixed
Beacon	Lon 12021.80 E delay 0s - TX 2200
智能 OFF ▼ □ 队列 0 S Pathi WIDE1 1 ▼	高度 100 M CH CH A - OFF
 ▼ 手劫 ⑦ 定时 20 S Path2 ♥ TIDE2 0 ▼ ● 	No Rx Power OFF Remote Sn BEEP OFF V 123456
▼ MIC-E MO:OFF DUTY ▼ CH CH A ▼ 图标 1 / [PTT延时 350ms ▼ 图标 2 180 S / P 自定信息 MAX 60 bytes 中国首款专业APRS双段手台	U/V RF 1W Vol 1 • Mic 1 • pw OFF • Frq 144.6400 GPRS for 51G3 TCP • 202.141.176.2 14580
	V login sn V Power APN SET
▼电压 ▼温度 里程 OKm TX Sluetooth OUT WIFI max 16 byte	Yaesu G5500 rotate control (USB-232B) 目标 START1 1 ▼ □ 启用
Out1 UI ON Name HiWiFi_3452AE_2 ON	L R U D S
Out2 OFF 👻 🔽 Code 13013684000	水平 000 仰角 000 🕼
数据显示 517	
	about

Track function settings

Note: In the Sport site type, no matter which of the following beacon modes is required, the GPS must be effectively locked before it will be transmitted.

Smart mode:

When the GPS is locked, the beacon is automatically transmitted according to the heading and speed.

Manual mode:

When the GPS is locked, each time the platform's own PTT button is pressed, when it is released, it automatically follows the beacon.

Timing mode:

When the GPS is locked, the beacon is automatically transmitted at the set time.

Queue mode:

Fired according to the set number of seconds in 1 minute,

Note: Unlike the regular timed transmission, the time base is not the same. The actual transmission time is always set to +1 second.

For example, if the queue time is 0 seconds, it will be transmitted according to the following

时间			msg	
2018-09-20 10:0	5:01	`31	34.35N/12019.88E>0/t@>/`"4]}51X1C3 0001.0Km 4.1V 32.0C S02	BH4TDV-2>SQS
2018-09-20 10:0	4:01	`31	34.35N/12019.88E>0/t@>/`"4Y}51X1C3 0001.0Km 4.1V 32.3C S02	BH4TDV-2>SQS
2018-09-20 10:0	3:01	`31	34.34N/12019.88E>0/tE>/"4W}51X1C3 0001.0Km 4.1V 32.5C S03	BH4TDV-2>SQS
2018-09-20 10:0	2:01	`31	34.34N/12019.88E>0/tE>/"4V}51X1C3 0001.0Km 4.1V 32.6C S02	BH4TDV-2>SQS
2018-09-20 10:0	1:01	`31	34.33N/12019.87E>0/s>/`"4V}51X1C3 0001.0Km 4.1V 32.8C S02	BH4TDV-2>SQS
2018-09-20 10:0	0:01	`31	34.34N/12019.88E>0/t>/`"4J}51X1C3 0001.0Km 4.1V 32.5C S02	BH4TDV-2>SQS
2018-09-20 09:5	9:01	`31	34.35N/12019.88E>0/t>/ "4V}51X1C3 0001.0Km 4.1V 32.1C S02	BH4TDV-2>SQS
2018-09-20 09:5	8:01	`31	34.36N/12019.88E>0/t&>/ "4[}51X1C3 0000.9Km 4.1V 30.4C S02	BH4TDV-2>SQS

GPS/Track/DIGI/BT/USB

GPS power saving function

When manually pressed, or when the time arrives, the GPS will be automatically turned on, the GPS will be hot-started, positioned within a few seconds, then launched, and the GPS will be turned off again.

Note: Only manual mode or timing mode is active.

PATH 1, PATH 2

Requires the number of relay forwarding and forwarding names of WIDE1 or WIDE2.

The default setting is WIDE1-1 WIDE2-0, which means that the relay named WIDE1 is forwarded once and WIDE2 is not required to be forwarded.

MIC-E

The beacon data is compressed and transmitted, which effectively shortens the transmission time, reduces the probability that the data is interfered by other signals in the air, and improves the decoding success rate of the receiver.

PTT delay

Before the signal is transmitted, the PTT triggers the delay. When the other party's SQL response is slow, the PTT delay parameter can be increased.

E APRS 51 Series SETUP 2018-10-01 BH4TDV					
COM Port COM3 - Serial Close Read Write Reset	Language No Rx Power OFF Volume ● 中文 ─ English OFF ▼ TX -10.5dB ▼				
SETUP CALL BH4TDV -2 、 站点 SPORT 、 Ø GPS ON Beacon 智能 1 、 DN列 0 S Path1 WIDE1 1 、 手动 定时 30 S Path2 WIDE2 0 、 GPS省电(手动、定时) 发型 ! Ø MIC-E M0:OFF DUTY 、 PTT延时 300ms 、 自定信息 51X1C3	Fixed DIGI Lat 3135.90 N Lon 12021.80 F ON WIDE1 TX 1200 TX 2200 高度 100 M delay 0s TX 0FF V/V RF 1W Remote Sn Vol 1 OFF I23456 Mic 1 144.6400 GPRS for 5163 TCP 202.141.176.2 I4580				
✓ 里程 ✓ 卫星 ✓ 气压 累计里程记忆 ✓ 电压 ✓ 温度 里程 TX Bluetooth OUT WIFI max 16 byte Out1 ✓ ON Name HiWiFi_3452AE_2 ON Out2 OFF ✓ Code 13013684000 ✓	♥ login sn ♥ Power APN SET Yaesu (55500 rotate control (USB-232B) BEEP 目标 START1 1 ▼ 启用 ♥ RX L R U D S ♥ TX 水平 000 仰角 000 Go MID ▼				
0ut2 0FF Code 13013684000 水平 000 仰角 000 Go MID ▼ 数据显示 512 512 MID ▼ MID ▼ MID ▼ MID ▼ MID ▼ MID ▼ MID ▼ MID ▼ MID ▼					

Icon 1:

! Indicates the data type character, fixed length 1 word, generally do not need to be changed. If you need to modify, refer to the APRS protocol manual.

/ indicates the icon set, generally do not need to be changed. For modifications, refer to the APRS protocol manual.
 > Indicates the icon style displayed on the server map, with a fixed length of 1 word, refer to the APRS Icon Set to change.

Auto icon 2:

Three parameters: wait time, 2nd icon, and 2nd icon set.

180 waiting time, in seconds

/ indicates the second icon set P means the second icon

GPS/Track/DIGI/BT/USB

In the smart mode, when the rest time reaches the set waiting time, the second icon is automatically converted.

Custom information

Up to 60 words in English and up to 20 words in Chinese.

Beacon option

Mileage: The mobile station beacon contains the automatically calculated mileage. Fixed station beacons are not included.

Satellite: The mobile station beacon contains the number of valid satellites. Fixed station beacons are not included. Air pressure: The auxiliary air pressure sensor data is included in the mobile station and fixed station beacon.

Voltage: The battery voltage sensor data is included in the mobile station and fixed station beacons.

Temperature: The auxiliary station's beacon contains the auxiliary temperature sensor data.

Note: Temperature data is for reference only due to machine size and structure limitations.

Note: The shorter the custom information, the less beacon options.

The longer the data, the longer the transmission time, and the greater the probability that the signal will receive air interference, which may result in a lower decoding rate.

Mileage memory

When this item is checked, the real-time mileage will be automatically saved in synchronization every time the beacon is transmitted.

If this item is not checked, the next boot mileage will be cleared automatically.

TX test button

When in the fixed station, press this button, the hand station automatically transmits once, to be the beacon of the fixed station position.

When the mobile station is in the mobile station, when the GPS is effectively locked, pressing the button, the radio automatically transmits a real-time position beacon.

COM Port	Language	DIGI	Volume
COM2 - Serial OPEN Read Write Reset	● 中文 ○ English	V WIDE1	TX -9.0dB
SETUP	Fixed	V ON WIDE2	RX -1.5dB
CALL BH4TDV -7 → 站点 SPORT → IV GPS ON	Lat 3135.90 N		TX 1200
Beacon	Lon 12021.80 E	delay Os 👻	TX 2200
智能 OFF 🖌 🗌 队列 O S Pathi WIDE1 1 🗸	高度 100 M	сн Сна 🗸	
▼ 手动		ch in the t	OFF
	No Ex Power OFF	Remote Sn	BEEP
□ GPS省电(手动、定时) 类型	OFF 🗸	123456	📝 RX 📝 TX
▼MIC-E MO:OFF DUTY - CH CH A - 图标 1 / [U/V RF 1W		
PTT延时 350ms ▼ 图标 2 180 S / P	Vol 1 👻 Mic 1	▼ pw OFF ▼	Frq 144.6400
	GPRS for 51G3		
自定信息 MAX 60 bytes 中国首款专业APRS双段手台	TCP - 202.141.1	76.2 14	580
	🔽 login sn 🔍 P	ower APN SI	ET
▼电压 ▼温度 里程 0 Km エメ	-Yaesu G5500 rotate c	ontrol (USB-232B)	
Bluetooth OUT WIFI max 16 byte	目标 START1 1	▼ ■ ℓ	自用
Duti UI ON Name HiWiFi_3452AE_2 ON	LRU	DS	
Out2 OFF - Code 13013684000 V	水平 000 仰角	000 Go	
数据显示 517			
			about
		▼ Rx 分析	CLEAN
		qe: 8.2 V	

GPS/Track/DIGI/BT/USB

OUT 1	Bluetooth data output 1, 9600 rate
KISS HEX	coutputs standard KISS data instructions for various standard APRS computers or PC software
UI	outputs standard UI text data for uploading the server, or secondary development by the user.
GPWPL	outputs standard GPWPL waypoint data, user GARMIN navigator
KISS ASC	outputs standard KISS ASC data instructions for secondary development of users
GS232B	output standard GS232B data command for G5500 rotator control
OFF	closes the output data
OUT 2	Bluetooth data output 2, 9600 rate
GPS	outputs GPS data (GNRMC+GNGGA), which can be mixed with OUT 1 at the same time.

OFF t turns off GPS output

Bluetooth power switch

ON/OFF

COM Port	Language DIGI Volume
COMI FOR COM2 V Serial OPEN Read Write Reset	Language DIGI Volume ● 中文 © English V ON WIDE1 TX -9.0dB -
SETUF CALL BH4TDV -7 、站点 SPORT 、 GFS ON Beacon 智能 OFF 、 队列 O S Path1 WIDE1 1 、 I 、 I 、 I 、 DEH 20 S Path2 WIDE2 O 、 GFS省电(手动、定时)	Fixed Image: Constraint of the state
0ut1 UI → ON Name Hi₩iFi_3452AE_2 ON	
0ut2 0FF ▼ Code 13013684000 V	水平 000 仰角 000 🚱
数据显示 517	
	about
	☑ Rx 分析 CLEAN

APRS digital repeater DIGI function

Able to set 2 repeater names

Repeater Name 1: Default WIDE1 number or English uppercase, up to 6 digits

Repeater Name 2: Default WIDE2 number or English uppercase, up to 6 digits

Forwarding condition: When the device receives is a valid beacon,

And the beacon contains the local repeater name, and the number of forwarding times is greater than 1,

The device will forward once, and reset the number of forwarding times, reduce it once, and repackage it.

If the number of forwardings is 0 in the beacon, it will not be forwarded.

APRS digital repeater, each forwarding, is the process of receiving, decoding, re-encoding, and transmitting. Therefore, no matter how many times of forwarding, the signal quality is always the best, which is the difference from the traditional analog voice repeater.

APRS digital trunk, because the beacon contains the specified number of forwarding, so it will not forward indefinitely

GPS/Track/DIGI/BT/USB

Remote password

Default password 123456, it must be 6 digits

Be able to remote operate digipeater, control external relays and sensors

When a valid beacon is received and the beacon contains a password and an instruction, the following operations will be performed.

- 1, Command A0 closes DIGI 1
- 2. Command A1 opens DIGI 1
- 3, Command B0 closes DIGI 2
- 4. Command B1 opens DIGI 2
- 5, Command R0 reset

🖳 APRS网络版51TNC设置软件 2017-12-2	27 BH4TDV	
TNC IP 192.168.1.120 ENGI 状态 网络 信标 TNC	LSH 断开 读取 写入 G P S 数据监控 内部调试 固件历史	
DU VOI 13 VH		
_ 网关信标 时间: 0-65535秒 0=关闭,	不发送。 纬度格式: 3134.10M 经度格式: 12020.20E 。	信息小于70字。
网关ID 10 网络IS报告时	间 120 电台XF报告时间 600	
转发路径 WIDE1-1 ▼ 类型	! 图标集 / 图标 r 🛛 服告电压	
纬度 3134.311 经度	12020.22E 中文请小于20个字	RF测航式
自定信息 123456A0	8 小于70字	IS 测试
气象信标 时间: 0-65535秒 0=关闭,	不发送。 纬度格式: 3134.10M 经度格式: 12020.20M 。	信息小于50字。
气象ID 13 网络IS报告时	间 0 电台延报告时间 0	
转发路径 ▼ 类型	= 図标集 / 図标 _ 図标集 ■	<u>I</u>
纬度 3447.001 经度	11343.70E 不要填中文	RF测试
自定信息 WX_beacen	10 小于50字	IS测试
APRS.IS 服务器快速链接		
网关地图 网关原始数据	<u>气象地图 气象原始数据 气象图表</u>	
网关、气象信标共用选项 气象接口板	默认连接IO1,当启用GPS经纬度时,注意GPS接IO1,气象接口板;	车接102
■ 检测PM 2.5	(101)经纬度	

For example: Send custom information through 51TNC, fill in the custom information 123456A0 After sending this beacon, the repeater DIGI 1 will be closed.

	Language DIGI	Volume
COM2 - Serial OPEN Read Write Reset) 💿 中文 🖱 English 💟 ON 🕅	DE1 TX -9.0dB 👻
ETUP ALL BH4TDV -7 站点 SPORT 、 V GPS ON eacon 智能 OFF 、 队列 O S Path1 WIDE1 1 、 マ 手动 V 定时 20 S Path2 WIDE2 O 、 GPS省电(手动、定时) 20 K Path2 N UDE2 0 、 文 型 !	Lat 3135.90 N Lon 12021.80 E delay Os	DE2 RX -1.5dB ▼ TX 1200 TX 2200 OFF BEEP 6 V RX V TX
TT延时 350ms 、 图标 2 180 S / P 自定信息 MAX 60 bytes 中国首款专业APRS双段手台 2 里程 ② 卫星 ② 气压 累计里程记忆 2 电压 ③ 温度 里程 0 Km TX luetooth OUT WIFI max 16 byte ut1 UI ~ ON Name HiWiFi_3452AE_2 ON Code 13013684000 ③ ③	Vol 1 、 Mic 1 、 pw OFF GFRS for 51G3 TCP 、 202.141.176.2 Ø login sn Ø Power APN Yaesu G5500 rotate control (USB 目标 START1 1 、 L R Ø D S 水平 000 仰角 000 Go	 ▼ Frq 144.6400 14580 SET -232B) 启用
	V Rr	about 分析 CLEAN

GPS/Track/DIGI/BT/USB

Fixed station setting

Lat represents the latitude used by the fixed station, with a fixed length of 7 digits (including the decimal point) and a degree. Sub-format.

N/S fixed length 1 bit

Lon indicates the longitude used by the fixed station, with a fixed length of 8 digits (including the decimal point) and degrees. Sub-format.

W/E fixed length 1 bit

Height, in meters, when tracking the aircraft, you must set the height of the station.

After locking, when in fixed station mode,

Various types of fixed station beacons will be sent using this set latitude and longitude

The latitude and longitude of this setting will be used to calculate the relative distance to the other program, the north position, the relative direction, and so on.



When used to track the aircraft, you need to set the local latitude and longitude, altitude, and the call sign of the

GPS/Track/DIGI/BT/USB

E APRS 51 Series SETUP 2018-10-01 BH4TDV	
COM Port	Language No Rx Power OFF Volume
COM3 - Serial OPEN Read Write Reset	● 中文 ◎ English OFF - TX -10.5dB -
SETUP	Fixed DIGI RX -10.5dB -
CALL BH4TDV -2 → 站点 FIXED → 📝 GPS ON	Lat 3135.90 N WIDE1 TX 1200
Beacon	Lon 12021.80 E ON WIDE2
智能 OFF ▼ ▼ 队列 O S Path1 WIDE1 1 ▼	高度 100 M delay 0s ▼
■手动 □ 定时 15 S Path2 WIDE2 0 マ	TX OFF
	U/V RF 1W Remote Sn
■ GPS省电(手动、定时) 类型	Vol 1 V OFF V 123456
▼ MIC-E MO:OFF DUTY - 图标 1 / >	Mic 1 - 144.6400
	GPRS for 51G3
自定信息	TCP - 202.141.176.2 14580
51X1C3	✓ login sn ✓ Power APN SET
☑ 里程 ☑ 卫星 ☑ 气压 □ 累计里程记忆	a rogin su a ronci
☑ 电压 ☑ 温度 里程 0 Km TX	Yaesu G5500 rotate control (USB-232B) BEEP
Bluetooth OUT WIFI max 16 byte	目标 START1 1 ▼ □ 启用 V RX
Out1 VI - ON Name HiWiFi_3452AE_2 ON	L R U D S
Out2 OFF - Code 13013684000	水平 000 仰角 000 G₀ MID ▼
	X4 000 000
数据显示 512	
2018-09-20 10:17:20 BH4TDV-10>APET51, WIDE1-1:!3134.31N/12020.22Er09 [alt: 10997 speed: 185.2 course: 090 Dir(north): 224 Dir	and the second s
{GS-232B/G5500 CMD: W224 070 }	(Kelative): 224 distance: 3.8 Km elevation: about
2018-09-20 10:17:21 BH4TDV-10>APET51, BH4TDV-2*, WIDE1*:13134.31W/120	20.22Er090/100/A=036080 12.1V V Rx 分析 CLEAN
No connection Ver: 51X1C_3_20180920 BH4TDV C	PU ID: F62844F90027F5 Voltage: 4.3 V 31.9 C

This tracker has multiple analysis algorithms such as distance, azimuth and elevation angle.

When an aircraft beacon is received, it will analyze the relative direction and elevation angle to control the G5500 rotator to achieve automatic tracking.

APRS X1C3 firmware upgrade

Turn on the power, connect the USB cable, open the upgrade software, select the serial port number, and click

	≸ 51X1C3_20180927A固件	
	升级 停止 升级	疑难帮助
	串口 <mark>号</mark> COM1	•
	//8K CPU //APR5_51X1C3_20180927A固件 //默认第2图标1P //修正初始化篮牙名称	A
	//支持USB/蓝牙双口设置	
		~
Upgrade.		1 清零

APRS 51Track X1C3 GPS/Track/DIGI/BT/USB

How to query my track on the computer

The APRS-51 X1C3 uses the standard APRS protocol. When there is an APRS gateway nearby, when

the local beacon is received, the local track and other information will be displayed on the APRS map.

APRS.IS server : http://aprs.fi/

Client setup program

(For expert only)

Following interface is for reference only, the version is constantly updated, there may be

differences

Hardware connection:

- 1, open the X1C3 box by using proper tools
- 2. Use the USB-TTL data cable (optional) to connect to the APRS X1C3 motherboard ISP download port.
- 3. Open the universal serial port debugging software and select the correct port number. The default

rate is 9600.

4. Enter the command and modify the parameters you need.

Note: Setting parameters - pay attention to input method, you should use English status inputmtry not to copy information from other documents, so as not to bring in hidden characters, and the X1C3 board will not work properly.

When the setting data is garbled, delete the garbled data and rewrite it.

Instructions for setting instructions:

Note: All setup commands must be + Enter (ENTER). After setting the parameters, the motherboard will

reset and output all parameters.



GPS/Track/DIGI/BT/USB

QCOM_V1.0	
bout	
COM Port Setting	Command List
00M Port: 7 V Baudrate: 9600 V StopBits: 1 V Parity: None V	Choose All Commands HEX Enter Delay(mS)
	1: 123
ByteSize: 8 V Flow Control: No Ctrl Flow V Close Port	2: AT+CALL=NOCALL
	3: AT+SSID=10
** APRS-X1C2-20161003 BH4TDV ***	4: AT+TIME=30
OWER: 4.7V TEMP: Pressure:	5: AT+BEACON=1, !, 3134. 90N, /, 12020. 80E, : 5
	□ 6:
T+HELP=1	
T+DEMO=1 T+CALL=NOCALL	
IteRit=RoteRit	□ 9: □ □ 9 □
T+TIME=30	
T+BEACON=1, !, 3134.80N, /, 12020.99E, >, X1C2	
-> CMD ERR ! Try Enter	
, one statt is a parton	
Operation	
Clear Information DTR RTS View File Show Time	
HEX String Show In HEX Send With Enter	
Input String: AEX String Show In AEX Send With Enter	
- Send Command	
	Run Times: 10
Select File Send File	Delay Time (mS): 1000
	Save As Script Run Stop
Dave Log L. Welk/14/000m_VI. 0 Webm_Lba. CX C	Save As Script Nun Stop

Setting tips:

Connect the RX TX GND 3 wires of the motherboard ISP port with a USB to TTL data cable.

- **1**. You don't need to enter the instructions word by word.
- 2. Just enter any character and return to the full list of instructions.
- 3, in the list, copy the instructions you need to the software send area, modify the parameters,

point to send.

4, pay attention to the end of the instruction plus a carriage return.

GPS/Track/DIGI/BT/USB

Return command list

*** APRS-X1C2-20161003 BH4TDV *** POWER: 4.7V TEMP: ----- Pressure: -----

AT+HELP=1 AT+DEMO=1 AT+CALL=NOCALL AT+SSID=9 AT+TIME=30 AT+BEACON=1, !, 3134. 80N, /, 12020. 99E, >, X1C2

-> CMD ERR ! Try Enter

Command description *** APRS-X1C2-20161003 BH4TDV *** POWER: 4.7V TEMP: ----- Pressure: -----

The first line returns the firmware version number, battery voltage, temperature, and air pressure.

The air pressure and temperature are both installed to display the data.

Command: AT+HELP=1 Enter Description: List all commands.

Command: AT+DEMO=1 Enter Description: Use this setting to restore the motherboard defaults.

Command: AT+CALL=NOCALL Enter Description: Set the beacon call sign, the default call sign is NOCALL, uppercase, up to 6 digits.

Command: AT+SSID=9 Enter Description: Set the beacon SSID, the default is 9, the parameter value range is 0-15.

Command: AT+TIME=30 Enter Description: Set the interval for transmitting beacons at regular intervals. The parameter value ranges from 0 to 65535 seconds. The default is 30 seconds for easy testing.

Command: AT+BEACON=1, !, 3143.55N, /, 12020.66E, >, X1C

GPS/Track/DIGI/BT/USB

Description: Set the path requirements, type, latitude, icon set, longitude, icon, custom information of the beacon among them:

1 repeater forwarding path 0=No path, no need for other relay forwarding 1=Includes WIDE1-1 (default)

2=Includes WIDE1-1, WIDE2-1

! Indicates the type character, a fixed length of 1 word, generally do not need to be changed. For modifications, refer to the APRS protocol manual.

3134.55N means latitude, non-fixed length, filled in format, no need to change. Not related to actual launch, used for factory testing.

/ indicates the icon set, generally do not need to be changed. For modifications, refer to the APRS protocol manual.

12020.66E indicates longitude, non-fixed length, filled in format, no need to change. Not related to actual launch, used for factory testing.

> Indicates the icon style displayed on the server map, with a fixed length of 1 word, refer to the APRS Icon Set to change.

X1C represents custom information, up to 50 words in English.

* Voltage, temperature, and air pressure reports are automatically inserted at the end of the message

section. The temperature and pressure sensors are installed to report accordingly.

Firmware upgrade guide: Refer to the 51TNC series upgrade process.

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