G6C Series user manual

Copyright and Disclaimer

FCC Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

FCC Warning

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

NOTE: Any changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

INSTRUCTIONS OF SAFETY

This chapter contains information on how to operate "G6C series product" safely.

By following these requirements and recommendations you will avoid dangerous situations. You must read these instructions carefully and follow them strictly before operating the device!

The built-in battery of device need to be charged regularly every two months to avoid over-discharge and need to be stored in the dry and cool place.

The device uses 8V-32V DC power supply. The nominal voltage is 12V DC.

It is advised to transport the device in an impact-proof package.

Before usage, the device should be placed properly to ensure LED indicators (device operation status) are visible.

Before demounting the device from the vehicle, it should be disconnecting all the connection first.

CONTENTS

1. G6C Series Introduction

G6C series products include: G3C (2G, 3G), G3C+ (2G, 3G), G3CUS (2G, 3G) , G6C(2G,3G).

The G6C series products are new generation vehicle or asset trackers and telemetry device designed for maximum autonomy and ease for use. It is intended for use to protect and trace items such as containers-caravans-fixed plant-construction equipment-in shore boats and truck trailers. It can also be used for temporary tracking of vehicles for consignment purposes as well as covert "slap and track" operations. The features as follows:

➢ Double GPRS servers

➢ Flexible packet

➢ Dynamic report

➢ Profile

➢ Private hour mode

➢ Driving behavior

➢ Accident detection

➢ Single event

➢ Combination event

➢ Event flow

➢ Output wave shape

➢ Geo-fence

➢ Firmware OTA

2. G6C series products specifications

Specification	Dimension	94(L)X47(W)X20.5(H)mm
	Weight	~83g (With battery)
Environment	Operating temperature	-40℃ ~+80℃ (without backup battery) -10℃ ~+50℃ (with backup battery)
USB	Mini USB	2.0
CPU	ARM	STM32F103
LED indicator	3 LED indicators	GSM & GPS & POWER
Power supply	External	DC 8 to 32V
	Backup battery	Type : Rechargeable, Li-Po 3.7V, 750mAh
Power consumption	≥230mA (Active Tracking) ≥25mA (Power Saving Mode) ≥10mA (Deep Sleeping Mode)	
GSM/GPRS	Model (3G)	Built-In
		Air Prime HL8548
		Band: GSM 850/900/1800/1900MHz UMTS 850/900/1800/1900/2100MHz
		Multiple-slot Class 8 (dual band)/10 (quad band)
		GPRS class 10/Station class B
		TCP/IP over PPP
	Model(2G)	Built-In
		Air Prime HL6528
		Band : GSM 850/900/1800/1900MHz
		Multiple-slot Class 8 (dual band)/10 (quad band)
		GPRS class 10/Station class B
		TCP/IP over PPP
	SIM card	1.8V & 3.3V
GPS	Internal antenna	25*25 with amplifier
	External antenna	N/A

	Model 1	U-Blox NEO 6M
	Channel	50 Parallel Channels
	Accuracy	Autonomous<2.5M
	Sensitivity	-162dBm
Sensor	Accelerate sensor	Built-In, 3-axis
Flash storage	16Mbits	Built-In

3. Product overview

3.1 Check Part List

Before starting, check all the following items have been included. If anything is missing, please contact your supplier.

①Standard Part List

②Optional Part List
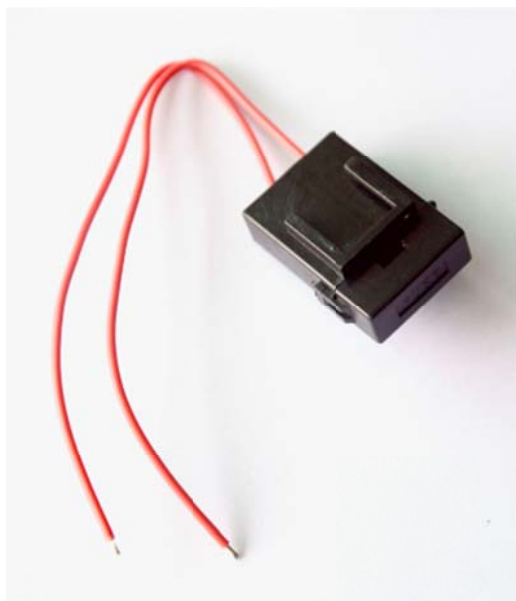
Fuse

Relay

USB cable

Fasten tape

3.2 Open the device cap

(Take G3C US-3G product for example)

Remove screws in the back of device first. Then force to open the device cap as the arrow direction.

Remove the device cap carefully.

3.3 Install SIM card

Please note the installation direction of the SIM card.

3.4 Connect USB data line

The USB cable is optional not for standard part, only for serial interface using.

3.5 Close the case

Put the power connector to corresponding socket and close the case carefully.

Close as the arrow direction and put screws on.

3.6 Installation Direction

Device has built-in GSM and GPS antenna, the signal of GSM and GPS will be affected by installation direction of device. The recommended installation direction as follows:

4. Interface Definition & Cable Color

Different interface definitions of G6C series product explain:

IO function	PIN definition	Level definition	Color	G3C	G3C+	G6C	G3CUS
POWER	VCC	8V-32V	Red	√	√	√	√
	GND	8V-32V	Black	√	√	√	√
Digital input	ACC	High level:>5.7V; Low level:<=5.7V	White	√	√	√	
	IN1	High Level:>0.7V Low Level:<=0.7V	Orange		√	√	√
	IN2	High Level:>0.7V Low Level:<=0.7V	Red/Black		√	√	√
Digital input &Analog input	AD1/IN3	High Level:>6V Low Level:<=6V	Green		√	√	
	AD2/IN4	High Level:>19V Low Level:<=19V	Blue/ White			√	
Digital output	OUT1	Max open drain currency:200mA	Blue	√	√	√	√
	OUT2	Max open drain currency:200mA	Yellow		√	√	√
	OUT3	Max open drain currency:200mA	Brown		√	√	
Microphone	MIC+		Grey		√	√	
Speaker	SPK+		Purple			√	
	SPK-		Orange/ white			√	
UART	TXD	TTL	White/ black			√	
	RXD	TTL	Green/white			√	
I-wire	I-WIRE		Yellow/ black			√	

Note: The number of interface wire is according to the specific product. The color and definition of the interface wires can find in the above form

5. User Combine Command

Device supports multiple combine commands sent to the device via SMS. The commands are separated by a comma; the maximum length of the combined command is 256 bytes. Formats as below:

User name	Separated Comma	Command 1	Separated Comma	Command 2	Separated Comma	...	Command n

1234	,	UNO;139 12345678	,	UPW; 4567	,	...	USP0; 1;24 H;0;W

Command Reply Explanation:

After device received the user's command will immediately process and reply to the user with SMS, reply SMS has two kinds: command error, command success.

5.1 Command Error SMS

Content	Explanation
G3C V1.00	Device name, Firmware version
ERR	Command Error

5.2 Command Success SMS

Content	Explanation
G3C V1.00	Device name, Firmware version
UPW:1234	Command Setting
Ext_Pwr=11.94V	External power voltage
BAT=3.90V	Built-in battery voltage
#3	Consumed messages

6. SMS Report Explanation

There are two kinds of SMS report: interval report and event report, SMS format have "W" and "T" mode types, GPS and LBS two kinds of positioning data.

6.1 "W" Mode Report

Content	Explanation
G3C V1.00	Device name/Firmware version
LTM 2013-06-06 14:17:12	Date/Time
http://maps.google.com/maps?q...	Google map hyper link
ETD:28/ACC ON	Event ID/User defined event name/Data
GSM -52dBm	GSM network signal strength
EXT_PWR=12.08V	External power voltage
BAT=3.86V	Built-in battery voltage
#301	Consumed messages

6.2 "T" Mode GPS Report

Content	Explanation
G3C V1.00	Device name/Firmware version
LTM 2013-02-28 23:51:09	Date/Time
GPS 1.55/0.50/3/4	HDOP/ALTITUDE in meter/Fixed satellite number/Time of first fixed
N23.164302	N means north/S means south
E113.428456	E means east/W means west
SPD:0km/h 0	Speed/Heading
ETD:28/ACC ON	Event ID/User defined event name/Data
GSM -52dBm	GSM network signal strength
EXT_PWR=12.13V	External power voltage
BAT=3.96V	Built-in battery voltage
#28	Consumed messages

6.3 "T" Mode LBS Report

Content	Explanation
G3C V1.00	Device name/Firmware version
LTM 2013-02-28 23:51:09	Date/Time
MCC/MNC/LAC/CID/RSSI	Base station information type
460/0/2503/962C/-53dBm	Main station(MCC/MNC/Local area code/ Station ID/Signal strength)
460/0/2731/40F4/-60dBm	Neighbor station 1
460/0/2703/4050/-70dBm	Neighbor station 2
ETD:28/ACC ON	Event ID/User defined event name/Data
GSM -52dBm	GSM network signal strength
EXT_PWR=12.13V	External power voltage
BAT=3.96V	Built-in battery voltage
#28	Consumed messages

Note:

1. Event report has "Event ID/User defined event name/Data" messages, fixed time report has not "Event ID/User defined event name/Data" messages.

2. "Date/Time" message, UTC: Greenwich Mean Time; LTM: Local time zone.

7. Common commands

To set your cell phone number as User0 or User1, send SMS command to control and receive messages from device.

7.1 Set User Cell Phone Number

Command:

UNO command is set up 2 users' phone numbers; user1 and user2 have the same authorization. With the correct password, any phone number is able to use this command. User0's factory default password is "1234"; User1's factory default password is "1234".

Command format:

1. Set user0 phone number:

< User0 Password>, UNO0 ;< new phone number>

2. Set user1 phone number:

< User1 Password>, UNO1 ;< new phone number>

Parameter description:

<New phone number>: the length is less than or equal 20 bytes. The setting has two formats:

1. Domestic phone number, without country code.

2. International phone number, with country code. It must add "+" before the numbers.

Example:

Set user0 phone number:

1234, UNO0; +8613912345678

Or

1234, UNO0; 13912345678

7.2 Set User Password

Command:

UPW command is set user command password. User0's factory default password is "1234"; User1's factory default password is "1234". Changing the default password at the first time is highly suggested.

Command format:

1. Set user0 password:

< User0 Password>, UPW0 ;< New Password>

2. Set user1 password:

< User1 Password>, UPW1 ;< New Password>

Parameter description:

< New Password>: Fix 4 digits, range is "0000 to 9999"

Example:

Set user0 password

1234, UPW0; 5678

7.3 Set Report Interval Mode Switching Condition

Command:

DNU command is to set conditions to switch between mode0 (dynamic mode) and mode1 (static mode). Set DNU command will affect the GPRS, SMS administrator, user report interval.

Command format:

< User Password>, DNU ;< Parameter>

Parameter description:

<Parameter>: HEX, Range is "0 to FF"

Bit7-Bit0 function definition as follow:

Bit0: Parking

Bit1: Domestic roaming

Bit2: International roaming

Bit3: Using backup battery

Bit4: ACC OFF

Bit5 - Bit7: Undefined

Bit states definition:

"0": Disable, synchronization protocol

"1": Enable, synchronization protocol

Example:

Device always stick to mode0 interval only.

1234, DNU; 0

Enable Parking condition

1234, DNU; 1

Enable Parking and ACC OFF conditions

1234, DNU; 11

7.4 Set timing Report Interval to User

Command:

USP command is to set the device in the mode 0(dynamic mode) and mode 1 (static mode) timing report interval to user0 and user1, upload data and data format.

Command format:

1. Set timing report interval to user0:

<User Password>, USP0; <Mode> ;< Interval> ;< Report mode>;<Data format>

2. Set timing report interval to user1:

<User Password>,USP1; <Mode>;<Interval>;<Report mode>;<Data format>

Parameter description:

<Mode>:

"0": Report mode0 –dynamic mode

"1": Report mode1-static mode .Valid only when command DNU is enabled.

<Interval>:

Report interval, range is "30 to 900 seconds", "15 to 59 minutes", "1 to 720 hours".

The parameter unit definition as follow:

S: Second M: Minute H: Hour

<Report mode>:

"O": Disable

"G": GPS information prior, otherwise use GSM tower position instead, GSM tower uses HEX format.

"L": Periodical voice call (Voice monitoring).

<Data format>:

"O": Device will not generate data.

"T": Text

"W": Map hyper link

Example:

Set User0 dynamic report interval:

1234,USP0;0;1H;G;W

Disable User0 static report interval:

1234,USP0;1;24H;O;W

7.5 Set SIM Card APN

Command:

Uninstall SIM card can't use APN command, APN command is a must for GPRS connectivity.

Command format:

< User Password>,APN;< APN >;< user name >;< password >

Parameter description:

<APN>: 1 to 64 bytes

<user name>: 0 to 32 bytes

<password>: 0 to 32 bytes

If there is not user name and password for APN, command could be:

APN;<APN>

Note: Device already save some APN information, the SIM card is recognized it will fulfill APN automatically.

Example:

Set: APN, user name, and password

1234,APN;cmnet;usr;pw

Query setting:

1234,APN

7.6 Set GPRS Main Server

Command:

SVR command is to set GPRS main server.

Command format:

<User Password>,SVR;<IP address>;<TCP Port>;<UDP Port>;<Mode>;<Enable ACK>

Parameter description:

<IP address>:IP or domain name, 64 bytes maximum.

<TCP Port>:TCP port

<UDP Port>:UDP port

<Mode>:

"0":TCP mode "1":UDP mode

"2":TCP channel for command, UDP channel for data report.

<Enable ACK>:

"0": Disable, synchronization protocol

"1": Enabled for UDP (default)

"2": Enabled for UDP and TCP both.

Note: <Enable ACK>: "1": data is sent via UDP channel from device , server must responds with any data in ACK waiting time, otherwise device will consider UDP is disconnected and save data to its internal flash storage.

Example:

Set as TCP socket:

1234,SVR;114.142.154.28;3032;;0;0

or

1234,SVR;www.anytracking.net;3032;;0;0

Set as UDP socket:

1234,SVR;114.142.154.28;;3032;1;1

or

1234,SVR;www.anytracking.net;;3032;1;1

Delete main server:

1234,SVR;

Query setting:

1234,SVR

7.7 Set GPRS Backup Server

Command:

BSV command is to set GPRS backup server.

The device connected with main server priority. When the connection between device and main server is overtime abnormally, it will switch to backup server. After the device is connected with the backup server in fixed time, it will try to connect with the GPRS main server automatically.

Command format:

<User Password>,BSV;<IP address>;<TCP Port>;<UDP Port>;<Mode>;<Enable ACK>

Parameter description:

<IP address>: IP or domain name, 64 bytes maximum

<TCP Port>: TCP port

<UDP Port>: UDP port

<Mode>:

"0": TCP mode

"1": UDP mode

"2": TCP channel for command, UDP channel for data report.

<Enable ACK>:

"0": Disable, synchronization protocol

"1": Enabled for UDP (default)

"2": Enabled for UDP and TCP both.

Note: <Enable ACK>: "1": data is sent via UDP channel from device , server must responds with any data in ACK waiting time, otherwise device will consider UDP is disconnected and save data to its internal flash storage.

Example:

Set as TCP socket:

1234,BSV;114.142.154.28;3032;;0;0

or

1234,BSV;www.anytracking.net;3032;;0;0

Set as UDP socket:

1234,BSV;114.142.154.28;;3032;1;1

or

1234,BSV;www.anytracking.net;;3032;1;1

Delete main server:

1234,BSV;

Query setting:

1234,BSV

7.8 Set Timing Report Interval to GRPS Server

Command:

SVP command is to set mode0 (static mode) and mode1 (dynamic mode) report interval to GRPS Server.

Command format:

<User Password>, SVP; <Mode> ;< Interval> ;< Report mode> ;< Data format>

Parameter description:

<Mode>:

"0": Report mode0, it's called static mode.

"1": Report mode1, its dynamic mode .Valid only when command DNU is enabled.

<Interval>:

Report interval, range is "5 to 900 seconds", "15 to 59 minutes", "and 1to 720 hours".

The parameter unit definition as follow:

S: Second

M: Minute

H: Hour

<Report mode>:

"O": Disable, synchronization protocol

"G": GPS information prior, otherwise use GSM tower position instead, GSM tower uses HEX format.

"A": GPS and GSM information

<Data format>:

"O": Device will not generate data (record).
"B": HEX
"T": ASCII

Example:

Set static report interval:

1234,SVP;0;30S;G;H

Disable static report interval:

1234,SVP;1;1H;G;H

8. LED Indicator Behavior

■ **GSM LED: Green**

Server socket connected: Flash once quickly every 3 seconds

GSM network registered: Flash twice quickly in a row every 3 seconds

GSM network unregistered: Flash 3 times quickly in a row every 3 seconds

SIM card error: Flash 4 times quickly in a row every 3 seconds

Serial link communication error: Flash 5 times quickly in a row every 3 seconds

GSM module OFF: Never flash

■ **GPS LED: Yellow**

GPS fixed: Flash once quickly every 3 seconds

GPS unfixed: Flash twice quickly in a row every 3 seconds

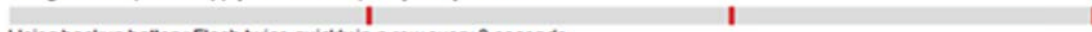GPS communication error: Flash 3 times quickly in a row every 3 seconds
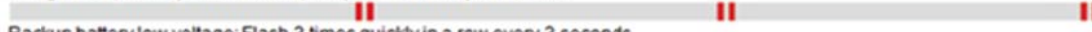
GSM module OFF: Never flash

■ **Power LED: Red**

Using external power supply: Flash once quickly every 3 seconds

Using backup battery: Flash twice quickly in a row every 3 seconds

Backup battery low voltage: Flash 3 times quickly in a row every 3 seconds