TOPTRAKING 4G PERSONAL GPS TRACKER

Model: Q3

Version: V1.1

www.toptraking.com

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⊙ Please read this user guide carefully before installation to avoid any possible personal injury or property loss.

Revision History

Version	Author	Revision Date	Description of change
V1.1	Cici Wu	Aug 16, 2022	Initial revision

Related Files

Version	File	Remarks
V1.2	<A03 GPRS Protocol >	GPRS protocol between terminal and server
V1.2	< Q3 Command List>	Command details of GPRS/SMS/COM
V1.1	<USB Cable Driver Installation Guide>	How to install USB cable driver
V1.1	<Firmware Upgrade Guide>	How to upgrade firmware
V1.2	< Tilt Detection User Guide>	Explain how we detect and how to use the Tilt/Man down/Fall down detection

Related Software

Version	Software	Remarks
V1.0	< Parameter Tool >	Parameter configuration tool on PC
V1.11.0	< PL2303_Prolific_DriverInstaller >	Driver for USB cable
V1.0	< Firmware Upgrade Suite>	Tool for firmware upgrade

Contents

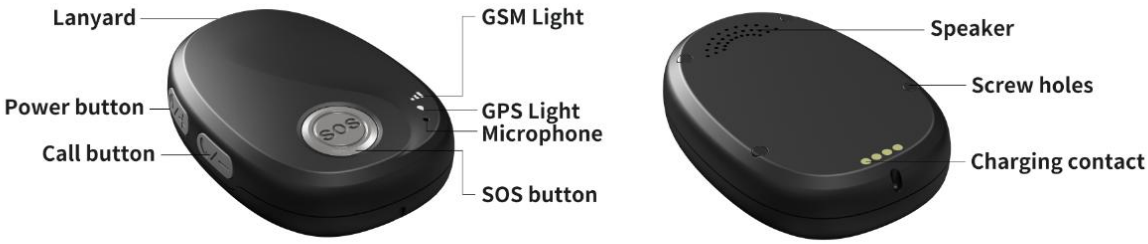
1. Product Overview

Q3 is a latest generation new 4G LTE personal GPS tracker designed for kids, elders, employees, lone workers, pets, animals, and valuable asset tracking. It keeps a good balance between size and battery working life, the working time is up to 3.4 days at every 5 minutes tracking time interval. Q3 has passed IP67 waterproof standard, which is suitable for outdoor activities. With built-in microphone and speaker, Q3 supports two-way communication between the user and the preset SOS phone guardian. Powered by the built-in 3-axis motion sensor and excellent firmware algorithm, the Q3 device is able to detect the Tilt/Man down/Fall down events accurately. Q3 uses original simple and professional A03 GPRS PROTOCOL, the programmers can integrate this protocol in their own platform and develop APP efficiently.

2. Product Main Functions

- Real Time Tracking
- Mobile Phone Tracking
- Tracking by time interval
- Heartbeat interval
- Tracking by LBS
- Tracking by WiFi option
- Bluetooth
- Two-way calling
- Voice monitoring
- IP67 Waterproof
- SOS Alarm
- Movement alarm
- Tilt/Man down/Fall down alarm detection
- Internal battery low alarm
- 4 MB Flash Memory
- Long battery working time
- Smart power saving modes
- OTA

3. Product Appearance



Button Description

SOS Button	
Press SOS button for 2 seconds and feel the motor vibration	SOS alarm triggered
Short press SOS button	Cancel pre-alarm stage of tilt alert
Power Button	
Press power button for 3 seconds	Power on or power off
Call Button	
Short Press call button to pick up call	Pick up incoming two-way calling from the SOS number phone
Press call button for 3 seconds to dial a call	Dial to call the first authorized SOS number
Short Press call button during calling conversation to adjust voice volume	Two voice volume modes. Short press switch between loudspeaker and default normal volume modes
Short press call button to check device in sleep mode or power off status when two LED lights are off	If device in sleep mode, both LED lights will flash at every 1 second, total flash for 6 times then off.

Standard Packing Box

Backup screws

Main Unit Charger Charging cradle Screwdriver

4. Specification

Item	Specification	
Dimension	65*46*17mm	
Weight	48g	
GSM Module	Quectel EG915U, Cat 1 type	
GPS Chipset	ZKW AT6558R	
Charging Voltage	DC 5V/1A	
Internal Battery	1000mAh/3.7V Lithium-ion battery	
Full charging time	<2 hours 10 minutes	
Power Consumption	Average 2.4mA standby current	
Working hours	Refer to chapter 6 for details	
Microphone	Built-in microphone	
Speaker	Built-in speaker	
Operating Temperature	-20℃~70℃	
Humidity	5%~95%	
Waterproof	IP67 (Testing condition: Immersed in 20cm depth water for 30 minutes)	
LED Light	2 LED lights indicate GPS/GSM/Power status	
Button/Switch	1 SOS button, 1 power button, 1 call button	
Flash Memory	4MB (Buffer storage: GPRS 8000 units, SMS 400 units)	
Motion Sensor	3-axis motion sensor (for Tilt/Man down/Fall down/Movement detection)	
Vibration motor	Built-in, vibration reminder incoming call/button press	
WiFi	2.4 GHz 802.11b (Rx)	
Bluetooth	BlueTooth Low Energy (BLE4.2 BR/EDR)	
Frequency Band	**EU version:** for Asia, Europe, Middle East, Africa, Australia countries	**2G** GSM: B2/B3/B5/B8
		4G FDD-LTE: B1/B3//B5/B7/B8/B20/B28
	LA version: for Latin America countries	**2G** GSM: B2/B3/B5/B8
		4G FDD-LTE: B2/B3/B4/B5/B7/B8/B28/B66
	USA and Canada	**Don't support**
GPS Sensitivity	-167dBm	
GPS Start Speed	Cold start 30s Hot start 1s	
Position Accuracy	2.5m	
Charging Cradle	Available, standard packing accessory	

Charging Port	1 magnetic contact port for Configuring/Upgrading/Debugging

5. LED Light

GPS Light (Green)	
Flash 0.1s on and 3s off	GPS valid
Flash 2s on and 2s off	Searching GPS signal
GSM Light (Orange)	
Flash 0.1s on and 3s off	GRPS connected
Flash 2s on and 2s off	GSM searching
Battery status (Both GPS and GSM lights flash synchronously)	
Both Off	Sleep mode or power off
Both flash every 0.1s	Low battery
Both solid on	On charging
Both flash 0.1s on and 3s off	Battery recharging full

6. Battery Working Time

Q3 has a built-in 1000mAh rechargeable lithium-ion battery. Longer battery working time is one of our core design goals from the beginning. After hard efforts on the firmware and hardware development, now we can achieve below excellent results:

Testing conditions (WiFi turn off)	**Working time**
30 seconds time interval	12 hours
60 seconds time interval	22 hours
300 seconds (5 minutes) time interval	83 hours (3 days 11 hours)
600 seconds (10 minutes) time interval	102 hours (4 days 6 hours)
3600 seconds (1 hour) time interval	107 hours (4 days 11 hours)

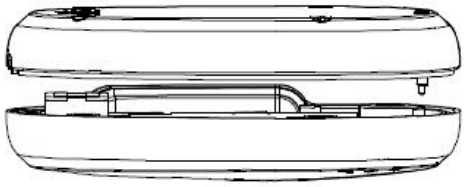
7. Tilt/Man down/Fall down Detection

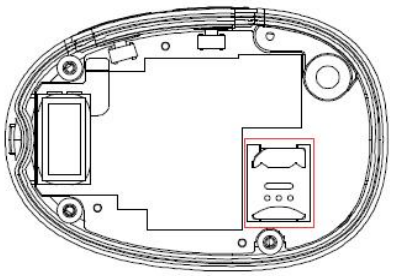
Normally when we talk about “Tilt” alert, it includes two states. “Man down” is a state that a person who falls down slowly with consciousness, still maintain a part ability to control his/her body during fall down process. “Fall down” is a state that a person who is unconscious and falls down freely.

Powered by the Q3 model built-in 3-axis motion sensor and our excellent algorithm in firmware, The Q3 device can detect higher accuracy Tilt/Man down/Fall down events, and reduce the false alerts obviously. For more details please check the < Tilt Detection User Guide>.

8. Insert the SIM Card

- The SIM card type is **Nano SIM card**
- Ensure the SIM card has GPRS service
- Ensure the PIN code has been closed.
- Power off device before Insert SIM card





Screw out the back case you will find the SIM card slot, insert the Nano SIM card correctly.

9. Charging

Charging by charging cradle.

The original charger is DC5V/1A

Full charging time: <2 hours 10 minutes

The GSM and GPS lights flash **synchronously** to indicate battery status, details are below

Both off	Sleep mode or power off
	Short press call button to check device is in sleep mode or power off status.
Both flash every 0.1s	Low battery
Both solid on	On charging
Both flash 0.1s on and 3s off	Battery recharging full

Turn on device

Press power button for 3 seconds to turn on/turn off device

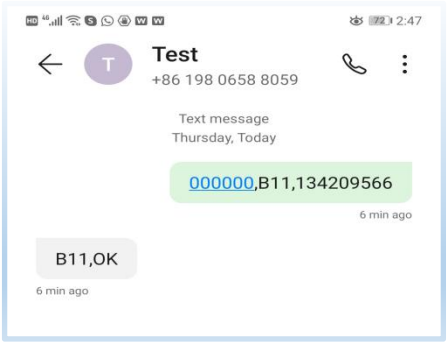
10. Tracking by phone

10.1 Setting SOS Number – B11

SMS Command: 000000,B11,<number1>,<number2>,<number3>
SMS Reply: B11,OK
For example: 000000,B11,134209566,134209677,138290708
Authorize 134209566 as first SOS number, 134209677 as second SOS number, 138290708 as third SOS number.

Note:

1) Only SOS numbers are allowed to call device if any SOS number is authorized.
2) Maximum 3 SOS numbers can be authorized.
3) Set up only one phone number, SMS command example is: 000000,B11,134209566
4) Delete all SOS numbers, the command is: 000000,B11
5) **Press SOS button for 3 seconds,** device will call all preset SOS numbers twice circularly, until any SOS number is answered. In addition, the device will send the SOS Alarm SMS message with Google map link location to all authorized SOS numbers.



10.2 Setting SMS Message Time Zone – B14

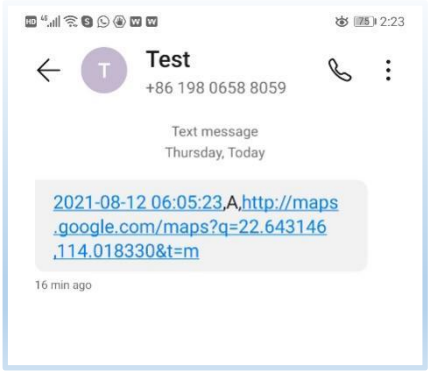
SMS Command: 000000,B14,<time zone>
SMS Reply: B14,OK
For example: 000000,B14,8
Set SMS message time zone to Eastern eight zone (GMT+8).

Note:

1) Time zone, range [-12, 12]. Western zones are minus sign in front, eg: 000000,B14,-8
2) Default time zone is 0, the user needs to set up his corresponded time zone.
3) When time zone is set, all SMS Messages use new time zone for date and time.

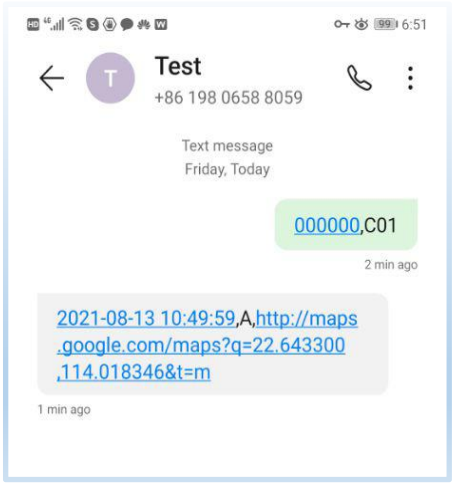
10.3 Tracking by Calling

Call the SIM card number inside the device by authorized SOS number, you will get a SMS reply with Google map link. Click it to check the location.



10.4 Tracking by SMS Command - C01

SMS Command：000000,C01
SMS Reply: Current location map link



10.5 SMS Reply Content Example

2021-08-13 10:49:59,A,http://maps.google.com/maps?q=22.643300,114.018346&t=m

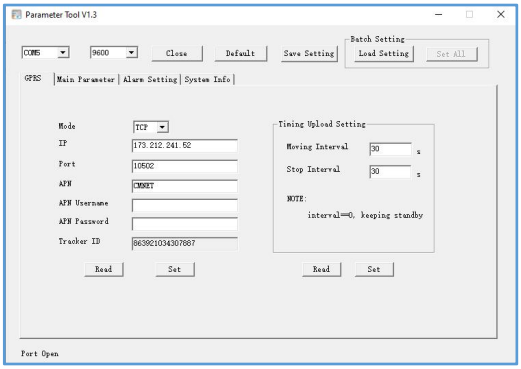
SMS Reply Format:

Field	Detail	Remarks
2021-08-13 10:49:59	Date and time, format YYYYMMDD hh:mm:ss	Date and time
A	GPS valid	GPS Status，”A” means GPS valid, “V” means GPS invalid.
http://maps.google.com/maps?q=22.643300,114.018346&t=m	Google map link, latitude in front of longitude. Unit is degree Latitude=22.643300° Longitude=114.018346°	Google map link with latitude and longitude, which can be opened directly on smart phone.

11. Configuring in PC

We provide parameter tool software for configuring parameters in PC. Please download USB cable driver and install it before using the parameter tool. Refer to <USB CABLE DRIVER INSTALLATION GUIDE> if need.

Connect device to PC with ***configuration data cable*** (optional accessory). Run “Personal Tracker Parameter Tool” software, choose correct port, always select 9600 baud rate, click “open” button.



12. Platform Tracking

Adding device to the tracking platform or APP, the user needs to configure the device as below steps.

Step 1: Setting IP and port

Command: 000000,B00,<IP>,<Port>

For example: 000000,B00,47.88.35.165,10502

Note:

1) 000000 is device SMS command password, default 000000
2) B00 is command
3) IP: server IP or domain, 47.88.35.165 is server IP
4) Port: server port, 10502 is port
5) Between fields is comma without any space

Step 2: Setting APN

Command: 000000,B01,<APN name>,<APN user>,<APN password>

For example: 000000,B01,cmnet

Set APN name as cmnet, no APN user and APN password

Note:

1) APN name “cmnet” is for China mobile, don’t copy, just an example.
2) Please contact your SIM card operator or Google to get APN information. Part of APN only have APN name, don’t have APN user and APN password, leave the APN user and APN password blank.

Step 3: Setting GPRS tracking time interval

Command: 000000,B03,<move time interval>,<stop time interval>

For example: 000000,B03,30,300

Set GPRS tracking time interval at every 30 seconds when the device moves, at every 300 seconds when the device stops.

Note:

1) Time interval, unit s, more than 30s is suggested

2) move/stop, the state of device, detecting by built-in 6-axis motion sensor
3) move time interval: tracking time interval under moving, unit is second, default 30 seconds
4) stop time interval: tracking interval when the device stops, unit is second, default 30 seconds
5) If <stop time interval> field parameter is empty, the device will always upload GPRS data as <move time interval> field parameter, no matter this device moves or stops.
   Eg: 000000,B03,30
   Device will upload data at 30 seconds interval always, ignore move/stop state.

13. Power Saving

Q3 will enter into different working modes automatically for power saving according to different time interval settings. Based on the 6-axis motion sensor, the device can detect its move/stop state accurately. The users only need to adjust GPRS uploading time intervals to achieve the excellent tracking performance and power saving results.

Command to set GPRS tracking time interval	
000000,B03,<move time interval>,<stop time interval> 1) 000000: SMS command password, default 000000. 2) <move time interval>: tracking time interval under moving, unit is second, default is 30 seconds 3) <stop time interval>: tracking time interval when the device stops, unit is second, default 30s. 4) No matter what time interval is set, incoming SOS number phone call or SMS command message always can wake up device.	
Configuration SMS command examples	
I want to track at every 30 seconds always, no matter this device moves or stops	000000,B03,30,30
I want to track at every 24 hours	000000,B03,86400,86400
I want to track at 30 seconds while the device moves, track at every 3600 seconds while the device stops	000000,B03,30,3600
I want to track at every 300 seconds while the device moves, disable the data uploading while the device stops	000000,B03,300,0
I want to disable the time interval tracking, only call the device to get location when I need.	000000,B03,0,0

Please e-mail us at info@topadaptor.com if any questions or feedback.