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1、 Preview

Mini and waterproof, working based on existing GSM/GPRS network and GPS satellites, this product can locate and monitor any remote targets by SMS or GPRS, and guard against theft of Vehicle. It is easy to take, it can protect itself from water, and it is specially made for children, old man and disabled people. Further more, it has a sleep mode which is used for pet.

2、 Applications

- ◆ Children, old people and disabled people's safety
- ◆ Pet
- ◆ People management
- ◆ Vehicle theft
- ◆ Vehicle tracking
- ◆ Vehicles management

3、 Hardware description

3.1 Internal Hardware

CPU: ARM CORE

GPRS module: SIMCOM

GPS module: SIRFIII

3.2 External Hardware



Front view

LED:	0.05 seconds on and 0.05 seconds off	Initializing
	1 second on and 1 second off	GSM module works, GPS not fixed
	1 second on and 3 seconds off	GPS fixed

SOS: Press for 3 seconds to send SOS alarm

ON/OFF: Press for 3 seconds to turn on/off tracker

Close housing:

You should make sure the interstice in all directions is homogeneous and use enough power when closing housing.

3.3 Additional Hardware

Special charger for easy and lasting use



MINI USB cable



4 、 Specification

Content	Specs.
Size	50(L)x40(W)x20(H) mm
Weight	50g
Network	GSM/GPRS
Band	850/900/1800/1900Mhz

GSM sensitivity	-102dBm
GPS chipset	SIRF III chipset
GPS sensitivity	-159dBm
GPS accuracy	5m
Cold/ Hot TTFF	35/2s
Car charger	12-24V input, 5V output
Battery capacity	3.7V DC Li-Ion Battery, 750mA
Standby time	About 48hours
Operating Temperature	-10°C to +65°C
Storage Temperature	-20°C to +70°C
Relative Humidity	5% to 95 %, non-condensing
<u>Special function</u>	Waterproof

5、SIM card installation

Make sure that there is no call transfer and call display is on, and PIN code off.

Steps:

- ◆Open the tracker rear cover, take out the main board, and put SIM card into the holder.
- ◆Put in a SD card beside the SIM card (at the back side of the main board).
- ◆Close the tracker back cover by tightened the screws.

Remark: after you insert SIM card, you can make a call to know the SIM card is well or not.

6、Startup

- ◆ Put the SIM card's card and battery in place.
- ◆ After connecting the wires with the tracker and the car, then you can see the red LED indicator is bright and the blue LED indicator flashes quickly.
- ◆ In 40-60 seconds, the unit will start to work and receive the GSM signals as well as the GPS signals. The blue LED indicator keeps flashing every 1 second when the unit has received the GSM signals. When this unit is normally working, you can use it and do all the following settings.

7、special function

7.1 waterproof

The seal housing can protect the unit from infiltrating into our tracker, so it can work well when stay in water. This function is useful for people like travelling, but it doesn't means it can work in water for a long time.

7.2 Sleep mode

This mode can be used for pet.

7.2.1 Send SMS as "FACID,123456,config,powere=1,powereon=10:30,powereoff=10:40" to set device work from 10:30 to 10:40, in other times device will sleep.

7.2.2 Send SMS as “FACID,123456,config,poweren=0” to cancel sleep mode.

7.3 Power saving mode

Power saving mode means when tracker has no work to do, it will close the GPS or GSM module to save power.

7.3.1 Send SMS as “FACID,123456,config,gpssave=1” to **enable** saving power mode.

7.3.2 Send SMS as “FACID,123456,config,gpssave=0” to **disable** saving power mode.

8、Tracking function

8.1 Initialization

Send SMS “FACID,123456,DEFAULT” to the unit, it will reply “FACID default OK!” and initialize all the settings. (default password: 123456)

8.2 Restart

Send SMS “FACID,123456,RESTART” to restart the unit, but it can't change the settings.

8.3 Change the Password

Send SMS “FACID,123456,PASSWORD,V=888888” to change the password to be 888888, it will reply “FACID password ok!”.

8.3.1 Be sure keep the new password in mind, you have to upload the software to restore the original setting in case of losing the new password.

8.3.2 Make sure the new password is in 6 digits, or else the tracker can not recognize the password.

8.4 Time-zone

We can set time-zone using this function, the default time-zone is Beijing time-zone.

8.4.1 Setup: Sent SMS "FACID,123456,TIME ZONE,V=+9", it will response SMS "FACID time zone ok!"

8.5 Authorization and SMS Center

There are only 5 numbers able to be authorized numbers.

There is only 1 number able to be SMS Center number, it can be one of authorized numbers or not.

8.5.1 Setup: Send SMS

"FACID,123456,AUTHORIZE,CENTER=13888888888,1=13145826121,2=13145826122,3=13145826123,4=13145826124,5=13145826125" to set up authorized numbers. the unit will reply SMS as "FACID authorize ok!". "CENTER" means SMS-center number, when an authorized number sends SMS or makes a call to the tracker, the tracker will reply a SMS with Geo-info & authorized number to SMS center. "1"、"2"、"3"、"4"、

“5” means five authorized numbers. If you want to set authorized numbers less than five, for example two, you can send SMS like this:

“FACID,123456,AUTHORIZE,CENTER=13888888888,1=13145826121,2=13145826122”

8.5.2 Cancel: Send SMS “FACID,123456,AUTHORIZE” to deactivate the Authorization and SMS Center. Response SMS as “FACID authorize ok!”.

8.5.3 When an authorized number dials up the unit, it will hang up and report a real-time Geo-info(geography information) as below:

Lat:22.54591N long:114.07906E speed:0.00 20/08/10 14:25

Battery=89%,1,Signal:current imei:01220700008760 05 117.0 460 00 2795 0E6A

Geo-info Analysis:

Lat:22.54591N long:114.07906E = = coordinate

Speed:0.00 = = speed is 0.00 Km/h

20/08/10 14:25 = = Date&Time

Battery=89% = = battery power

1 = = charging ; **0** = = no charging

Signal:current = = Full GPS signal ; **Signal:last** = = weak GPS signal

imei:01220700008760 = = International Mobile Equipment Identity

05 = = Means you get 5 GPS fix (from 3 to 10)

117.0 = = Altitude

460 == MCC(Mobile Country Code)

00 == MNC(Mobile Network Code)

2795 == LAC(Location area code)

0E6A == Cell ID

8.6 Auto-Track

This function is using for the user to receive SMS with Geo-info in a certain time.

8.6.1 Set up: Send SMS "FACID,123456,LOC,I=60,T=20,L=45" to the unit, it will report the Geo-info at 60s intervals for 20 times. "I" means "Interval", "T" means "Times", "L" means "Limit parameter".

- Because limit parameter is 45, tracker will not sent SMS with Geo-info if the distance between two adjacent points less than 45m.

- If you don't set limit parameter or set limit parameter 0, tracker will sent SMS without limited distance. You can set "FACID,123456,LOC,I=60,T=20"

8.6.2 Send SMS "FACID,123456,LOC,I=60,T=999" to the unit, it will reply SMS heaps of times.

8.6.3 Cancel: Send "FACID,123456,LOC" to delete the "autotrack".

8.7 Track on demand

Send SMS "FACID,123456,SMS,FAST" to get a real-time GPS data, whenever the device

is in auto-track or upload GPS data to sever.

8.8 GPRS Setting

GPRS setting must be set with Auto-Track at the same time so that GPRS can work.

In order to use GPRS function, the user needs to set IP, Port and APN (access point name).

(**Remark:** Some countries or regions should set APN's User Name and APN's Password.)

8.8.1 Sent SMS

“FACID,123456,GPRS,ADDR=113.90.7.193,PORT=7000,NAME=,PASS=,APN=CMNET, ID=88888, MODE=0,HBE=0,HBN=HI,HBI=50,HBT=100,HBR=1”,the unit will reply SMS as “FACID Gprs ok!”,and then you can sent SMS “FACID,123456,LOC,I=30,T=999”,the unit will reply “FACID loc ok!”,then you will receive Geo-info on server.

ADDR = = IP address

PORT = = port number

NAME = = available name

PASS = = correct password

APN = = access point name

MODE=1/0 = = use UDP/ TCP protocol

ID=88888 = = identifier

HBE=1: Heart-beat packet is activated; **HBE=0:** Heart-beat packet is deactivated

HBN = = text content of heart-beat packet

HBI = = interval time of heat-beat packet

HBT = = total times of heat-beat packet

HBR = = restart of heat-beat packet (a example as below)

(For example you set "**HBR=5**",it means that if the tracker have sent 5 heat-beat packets while the server can't be connected to,the tracker will restart automatically.)

Remark:“HBN”、“HBI”、“HBT”、“HBR” are parameters of heart-beat packet,
“heart-beat packet” is used to keep the GPRS connection constantly.

It is not need to set the “heart-beat packet”,so you can omit it when set GPRS,for example:

“FACID,123456,GPRS,ADDR=113.90.7.193,PORT=7000,NAME=,PASS=,APN=CMNET,IDD=88888, MODE=0,HBE=0”

8.9 SMS Format Converting

Sent SMS “FACID,123456,SMS,text/link” to set the SMS format and to debug the GPRS modules.

Remark: “text/link” means you can just choose one of “text” and “link”.If you choose “text”,the Geo-info is a standard GPS format;If you choose “link”,the Geo-info is a Google link.

“[http://maps.google.com/maps?f=q&hl=en&q=22.54596,114.07835&speed: 0.00](http://maps.google.com/maps?f=q&hl=en&q=22.54596,114.07835&speed:0.00)

25/08/10 10:36 F:4.13V Signal:L imei: 01220700008760”

8.10 Geo-fence

Set up a geo - fence for the unit to restrict its movement within a square district. The unit will send message to the authorized numbers when it moves out of this district or moves in this district.

8.10.1 Setup:Send SMS

“FACID,123456,GEOFENCE,1=114.000000e/22.400000n,2=113.800000e/22.600000n”

to the unit to set the restricted district.

Remark:The first latitude&longitude is coordinate of the bottom left corner of the Geo - fence, while the second latitude&longitude is the coordinate of the top right corner.

8.10.2 Response SMS format: “FACID geofence ok!”.

8.10.3 Cancel: Send SMS “FACID,123456,GEOFENCE” to deactivate the geofence alert.

Response SMS format: “FACID geofence ok!”.

If you get out of the Geo - fence district, you will receive SMS as “lat:22.550754N
long:114.07974E speed:4.18 24/08/10 18:30 Battery=86%,0, Signal:current **Geo out**
imei:012207000087160 03 757.2 460 00 2795 0E6A.”.

If you get into the Geo-fence district, you will receive SMS as “lat:22.550754N
long:114.07974E speed:4.18 24/08/10 18:30 Battery=86%,0, Signal:current **Geo in**
imei:012207000087160 03 757.2 460 00 2795 0E6A.”.

8.11 Movement Alert

This function is using for the owner to get alarm when the tracker moves out of the restricted district or moves into the restricted district.

8.11.1 Setup: Send SMS “FACID,123456,MOVE,L=200” to the unit to set the movement alert. This function make a circular area, if the tracker moves out of or moves into the area, an alert will be sent to the authorized numbers.

Response SMS as “FACID move ok!”.

Remark: the center of circular area is the latest point that tracker is positioning, “L” means radius,so the radius is 200m here.

8.11.2 Cancel: Send SMS “FACID,123456,MOVE” to deactivate the movement alert.

Response SMS format: “FACID move ok!”.

If you get out of the circular area, you will receive SMS as “lat:22.550754N
long:114.07974E speed:4.18 24/08/10 18:30 Battery=86%,0, Signal:current **Move out**
imei:012207000087160 03 757.2 460 00 2795 0E6A.”

If you get into the circular area, you will receive SMS as “lat:22.550754N
long:114.07974E speed:4.18 24/08/10 18:30 Battery=86%,0, Signal:current **Move in**

imei:012207000087160 03 757.2 460 00 2795 0E6A.”

8.12 Overspeed Alert

This function is using for the owner to control the target's speed.

8.12.1 Setup: Send SMS “FACID,123456,OV, L=50” to the unit (suppose the speed is 50Km/h), and it will reply “FACID ov ok!”.

(**Note:** over speed should be more than 50 Km/h, if you set it less than 50 Km/h, tracker will reply wrong alarm.)

When the target moves exceeding 50 km/h, the unit will send SMS:

“lat:22.550754N long:114.07974E speed:4.18 24/08/10 18:30 Battery=86%,0,
Signal:current **OverSpeed** imei:012207000087160 03 757.2 460 00 2795 0E6A.”

to the authorized numbers.

When the target moves low than 50 Km/h, the unit will send SMS:

“lat:22.550754N long:114.07974E speed:4.18 24/08/10 18:30 Battery=86%,0,
Signal:current **LowSpeed** imei:012207000087160 03 757.2 460 00 2795 0E6A.”

8.12.2 Cancel: Send SMS “FACID,123456,OV” to deactivate the overspeed alert

Remark: It is recommended that the speed alarm is set at not less than 50km/h. For below that rate, it may cause the excursion of the GPS signal influenced by clouds etc.

8.13 SD Card Function

A mini SD card can be put in the tracker's SD card slot. The GPRS data can be saved in the SD card if GPRS is off. It will send data to the GPRS server again if GPRS is on.

8.13.1 Send "FACID,123456,SDCARD,TEST" to test the SD card works well or not.

If SD card works well, it will replay "FACID sdcard ok", else replay "FACID sdcard fail".

8.13.2 Setup: Send "FACID,123456,SDCARD,LOG=1" to the tracker to activate the function of storing data in SD card.

Cancel: Send SMS "FACID,123456,SDCARD,LOG=0" to the tracker to deactivate the function of storing data in SD card.

8.13.3 Setup: Send SMS "FACID,123456,SDCARD, READ=1" to ask the tracker to send data in the SD card to the GPRS server.

Cancel: Send SMS "FACID,123456,SDCARD, READ=0" to ask the tracker to stop sending data in the SD card to the server.

9、 SOS Button

Press the SOS for 3 second, it will send SOS alert to all the authorized numbers.

SOS alert as below:

“lat:22.550754N long:114.07974E speed:4.18 24/08/10 18:30 Battery=86%,0,

Signal:current **Help** imei:012207000087160 03 757.2 460 00 2795 0E.”

10、Vibration Alert

10.5.1 Setup:Send SMS as “FACID,123456,VIB,L=5” to activate vibration alert, and it will reply “FACID vib ok!” , “L” means sensitivity which can be from 1 to 10,lager number means higher sensitivity.

If the vibration is big enough,the tracker will sent vibration alert to authourize numbers.

Vibration alert as below:

“lat:22.550754N long:114.07974E speed:4.18 24/08/10 18:30 Battery=86%,0,

Signal:current **VIB** imei:012207000087160 03 757.2 460 00 2795 0E6A.”

10.5.2 Cancel:Send SMS as “FACID,123456,VIB” to deactivate vibration alert, reponse SMS as “FACID vib ok!”.

11、Low Battery Alert

It begins to send SMS to the user every 30minutes when the the battery voltage is lower than 3.7V.

SMS format: “lat:22.550754N long:114.07974E speed:4.18 24/08/10 18:30

Battery=25%,0, Signal:current **LowBattery** imei:012207000087160 03 757.2 460 00

2795 0E6A.”

(**Note:** when battery less than 25%, tracker reply low battery alarm; when battery less than 10%, tracker turns off automatically.)

◆The SMS message must in Text format, can't be identified for PDU format.

◆Power on the tracker outdoor when use the tracker for the first time, it can search the GPS signal nearby, it also greatly shorten the time of searching the GPS signal for the future use.

12、Query Status or Link

Send SMS “FACID,123456,QUERY,Status” to get detailed status information,it will reply

SMS:

“lat:22.54577N,long:114.07941E,speed:0.00,23/08/10

11:59,F:4.10V,0,gps:current,csq:19,l:012207000087160,0,apn1,loc

l=0T=0L=0,+8,shk0,

sdlog0,rdsd0,”.

Content analysis:

lat:22.54577N,long:114.07941E = = coordinates

speed:0.00 = = the current rate

23/08/10 11:59 = = data and time

F:4.10V = = the battery voltage

gps:current = = GPS signal is useful

csq:19 = = signal quality (from 0 to 31)

I:012207000087160 = = imei number

0 = = no charging

apn1 = = access point number has been settled

loc I=0T=0L=0 = = parameters of auto - track

+8 = = time zone

shk0 = = vibration alert is closed

sdlog0 = = turn off SDcard storing

rdsd0 = = turn off SDcard reading

Send SMS "FACID,123456,QUERY,Link" to get a link of location on google map,reply as

SMS :

"http://maps.google.com/maps?f=q&hl=en&q=22.54577,114.07941&speed:0.00%202

3/08/10%2011.59%20f:4.10V%20signal:current%20imei:012207000087160"

13、Instruction using method

In this section,I will show you some skills to set tracker quickly.

Example1:

◆set authorize number 13302944401

Method 1(step by step):

First step: "FACID,123456,DEFAULT"

Second step: "FACID,123456,AUTHORIZE,CENTER=,1=13302944401"

Method 2(one step):

One step: "FACID,123456,DEFAULT; AUTHORIZE,CENTER=,1=13302944401"

Example 2:

◆Set auto-track

Method 1(step by step):

First step: "FACID,123456,DEFAULT"

Second step:

"FACID,123456,AUTHORIZE,CENTER=,1=13888888881,2=13888888882,3=13888888883,4=13888888884,5=13888888885"

Third step: "FACID,123456,LOC,I=30,T=5"

Method 2(one step):

One step:

“FACID,123456,DEFAULT;AUTHORIZE,CENTER=,1=13888888881,2=13888888882,3=13888888883,4=13888888884,5=13888888885; LOC,I=30,T=5”

Example 3:

◆Set GPRS

Method 1(step by step):

First step: “FACID,123456,DEFAULT”

Second step:

“FACID,123456,GPRS,ADDR=218.133.34.184,PORT=7000,NAME=,PASS=,APN=CMNET, ID=88888,MODE=0,HBE=0”

Third step: “FACID,123456,LOC,I=30,T=999”

Method 2(one step):

One step:

“FACID,123456,DEFAULT;GPRS,ADDR=218.133.34.184,PORT=7000,NAME=,PASS=,APN=CMNET,ID=88888,MODE=0,HBE=0; LOC,I=30,T=999”

14、Cautions

Please comply with the instructions to extend the unit life:

1. Keep the unit dry. Any liquid, i.e. rain, moisture, may destroy or damage the inside circuitry.
2. Don't use & store the unit in dusty places.

3. Don't put the unit in overheated or overcooled places.
4. Handle carefully. Don't vibrate or vibration it violently.
5. Clear the unit with a piece of dry cloth. Don't clean in chemicals, detergent.
6. Don't paint the unit, this may cause some foreign materials left in between the parts.
7. Don't disassemble or refit the unit.
8. Please use the battery and charger provided by manufacturer. Using other batteries and chargers will cause unwanted situation.
9. Don't dismount the antenna randomly, or use other antennas. This may interfere the transmission, and increase the radiation as well.

15、 Faults & Solutions

Fault:the unit can't work well

Solutions:

- 1.make sure the SIM card insert well
- 2.make sure the battery has enough power
- 3.make sure the atennas connect correctly