

# GPS TRACKER

GPRS Communication protocol,

## COMMUNICATION PROTOCOL

### 1. GPRMC setting

For GPRS function, we need to do following settings first.

#### 1.1 APN

APN (Access Point Name), it's decided by the provider of communication network.

Set APN	
Command	apn+password+space+ APN content
Example	apn123456 internet

If there're APN username and APN password, use following commands

Set APN Username	
Command	apnuser+password+space+content
Example	apn123456 internet
Set APN Password	
Command	apnpasswd+password+space+content
Example	apn123456 internet

#### 1.2 IP an Port

Under GPRS function, all information from tracker will be sent to a certain platform, such as an URL.

Every platform or server would has its own IP address and Port number.

Set IP and Port	
Command	adminip+password+space+IP ADDRES+space+PORT
Example	adminip123456 192.168.1.14 1111

The old APN, IP, Port will be removed automatically if you set the new one.

### 2. GPRMC format

Our format is based on GPRMC format, the GPRMC format should be like:

**\$GPRMC,053740.3 4.000,A,25032.0 .6319 N,12136.00 E,2.69,79. 100106,,A\***

Following table contains the values for the example:

<i>Name</i>	<i>Example</i>	<i>Units</i>	<i>Description</i>
Message ID	\$GPRMC		RMC protocol header
UTC Time	053740.000		hhmmss.sss
Status	A		A=data valid or V=data not valid
Latitude	2503.6319		ddmm.mmmm
N/S Indicator	N		N=north or S=south
Longitude	12136.0099		dddmm.mmmm

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E/W Indicator	E		E=east or W=west
Speed over ground	2.69	knots	True
Course over ground	79.65	degrees	
Date	100106		ddmmyy
Magnetic variation		degrees	
Variation sense			E=east or W=west (Not shown)
Mode	A		A=autonomous, D=DGPS, E=DR
Checksum	*53		
<CR> <LF>			End of message termination

### 3. Our format for STC solution (default)

Our default format is like following:

**S/N + Authorized Number + GPRMC + UTC Time + Status+Latitude + N/S Indicator +Longitude + W/E Indicator+Speed+Bearing+ Date+ Magnetic variation+ Variation sense+Mode + Checksum + Signal +Command + IMEI numbe + CRC16 checksum**

For example:

0711011831,+8613145826126,GPRMC,103148.000,A,2234.0239,N,11403.0765,E,0.00,,011107,,,A\*75,  
F,imei:352022008228783,101\x8D

0711011831,+8613145826126,GPRMC,103148.000,A,2234.0239,N,11403.0765,E,0.00,,011107,,,A\*75,  
F,helpme,imei:352022008228783,101\x8D

Following table contains the values for the example:

<i>Name</i>	<i>Example</i>	<i>Units</i>	<i>Description</i>
Serial Number	0711011831		ID of a certain message
Authorized Number	+8613145826126		
Signal (GPS)	F		F=normal, L=low
Command	help me		
IMEI Number	352022008228783		ID of the tracker
CRC16 checksum	101\x8D		

### 4. Our format for ARM solution (advanced)

Our default format is like following:

**S/N + Authorized Number + GPRMC + UTC Time+ Status+ Latitude+ N/S Indicator+Longitude + W/E Indicator+Speed +Bearing+ Date + Magnetic variation + Variation sense +Mode + Checksum + Signal +Command + IMEI numbe + Satellite + Altituded + Battery status +Battery Voltage+Length+ CRC16 checksum.**

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For example:

0711011831,+8613145826126,GPRMC,103148.000,A,2234.0239,N,11403.0765,E,0.00,1 011107,,A  
\*75,F ,imei:352022008228783,05,8.3,F:3.8V,122,101\x8D

Following table contains the values for the example:

<i>Name</i>	<i>Example</i>	<i>Units</i>	<i>Description</i>
Bearing	1	degree	Course over ground
Satellite	05		Receive valid signal from 5 satellites
Altitude	8.3	m	
Battery status	F		F=normal, L=low
Battery voltage	3.8V		
Length	122		Length of the whole GPRS string

## Attachment: GPS Receiver Spec

Chip	SiRF Star III GSC3f 7879	
Frequency	L1 1575.42MHz, C/A code	
Channels	20	
Update rate	1Hz	
Sensitivity	Tracking	-159dBm
	Cold start	-144dBm
Acquisition Time	Hot start (Open Sky)	< 1s
	Hot start (Indoor)	< 15s
	Cold Start (Open Sky)	< 35s
Position Accuracy	Autonomous	< 10m (2D RMS)
	SBAS	< 5m (2D RMS)
Max. Altitude	< 60,000 ft	
Max. Velocity	< 1,000 knots	
Protocol Support	NMEA 0183 ver 3.0	4800 bps, 8 data bits, no parity, 1 stop bits (default) 1Hz: GGA, GLL, GSA, RMC, VTG 0.2Hz: GSV1
	SiRF Binary	38400 bps, 8 data bits, no parity, 1 stop bits

Ps: For more detailed commands, please see the 《Commands List》