

iTrac GSM,GPRS Manual

Version: “20061225-01”

Document Name : iTrac GSM,GPRS Manual
Compose Date :
Edit Date :
Update Date : 25 December 06

CONTENTS

1. Introduction	7
1.1. Features	7
1.1.1. Communication	7
1.1.2. Logging	7
1.1.3. Event	8
1.1.4. Reporting	8
1.1.5. Alarm	8
1.1.6. Unit Configuration	8
1.2. Communication with iTrac	9
1.2.1. SMS	9
1.2.2. GPRS	9
1.2.3. USB	9
1.3. Mechanical Specification	9
1.3.1. Back Side Connector	10
1.3.1.1. USB Cable Connector	10
1.3.1.2. SIM Card Holder	10
1.3.1.3. iTrac Cable Connector	11
1.3.2. Front Side Connector and LED	12
1.3.2.1. GSM Aerial	12
1.3.2.2. GPS Aerial	12
1.3.2.3. GSM LED	12
1.3.2.4. GPS LED	12
1.3.2.5. GPRS LED	12
1.3.2.6. USB LED	12
1.3.3. Characteristics	13
1.3.3.1. Physical Characteristics	13
1.3.3.2. Case Environmental Characteristics	13
1.3.3.3. Electrical Characteristics	13
1.3.3.4. GPS Specifications	13
2. iTrac Configuration	14
2.1. Setting Parameters via USB	14
2.1.1. GSM Module Setting	15
2.1.2. GPRS Setting	15
2.1.3. Control Center Setting	15
2.1.4. History Logging Setting	16
2.1.5. History Setting	16
2.1.6. E-Mail ID Setting	17
2.1.7. Odometer Setting	17
2.1.8. Journey Setting	17
2.1.9. Journey Alarm Setting	18
2.1.10. Over Speed Alarm Setting	18
2.1.11. Geographical Control Setting	18
2.1.12. Panic Alarm Setting	19

2.1.13.	Real Time Reporting Setting	19
2.1.14.	SMS CONVERT	19
2.2.	Getting and Setting Parameters via SMS	20
2.2.1.	GSM Module Setting	20
2.2.2.	GPRS Setting	20
2.2.3.	Control Center Setting	20
2.2.4.	History Logging Setting	21
2.2.5.	History Setting	21
2.2.6.	E-Mail ID Setting	22
2.2.7.	Odometer Setting	22
2.2.8.	Journey Setting	22
2.2.9.	Journey Alarm Setting	23
2.2.10.	Over Speed Alarm Setting	23
2.2.11.	Geographical Control Setting	24
2.2.12.	Panic Alarm Setting	24
2.2.13.	Real Time Reporting Setting	24
2.2.14.	SMS CONVERT	24
2.3.	Getting and Setting Parameters via GPRS	25
3.	Event	27
3.1.	Event List	27
3.1.1.	Normal Event	27
3.1.2.	Journey Start	27
3.1.3.	Journey End	27
3.1.4.	Over Speed	27
3.1.5.	Idle Time	28
3.1.6.	Towing	28
3.1.7.	Output Status Change	28
3.1.8.	Input Trigger	28
3.1.9.	Internal Battery Low	28
3.1.10.	External Battery Low	28
4.	Control Command	28
4.1.	Control Command List via USB / SMS	28
4.1.1.	&LOCATION	29
4.1.2.	&REBOOT	29
4.1.3.	&HISTORYCOUNT	29
4.1.4.	&HISTORYREPORT	29
4.1.5.	&HISTORYDELETE	29
4.1.6.	&VERSION	29
4.1.7.	&OUTPUT	29
4.1.8.	&PANICOFF	30
4.2.	Control Command List via GPRS	30
5.	Message Format	31
5.1.	Normal Message	31
5.2.	Logging Message	32
5.3.	History Message	33

5.4.	Alarm Message	33
5.4.1.	To Person	33
5.4.2.	To Control Center	34
5.5.	Convert DDMM.MMMM and DDDMM.MMMM to D.d or DMS	34
6.	iTrac Reporting Rule	35
6.1.	Wired Mode	35
6.2.	SMS Only Mode	35
6.3.	GPRS Only Mode	35
6.4.	SMS and GPRS Mode	35
7.	Important Notice	37

Table Contents

[Tab 1-1]	Cable Description	11
[Tab 1-2]	GSM LED	12
[Tab 1-3]	GPS LED	12
[Tab 1-4]	GPRS LED	12
[Tab 1-5]	USB LED	12
[Tab 1-6]	Physical Characteristics	13
[Tab 1-7]	Case Environmental Characteristics	13
[Tab 1-8]	Electrical Characteristics	13
[Tab 1-9]	GPS Specifications	13
[Tab 2-1-1]	COMM Parameters	15
[Tab 2-1-2]	GPRS Parameters	15
[Tab 2-1-3]	SERVER Parameters	15
[Tab 2-1-4]	LOGGING Parameters	16
[Tab 2-1-5]	HISTORY Parameters	16
[Tab 2-1-6]	HIST Parameters	17
[Tab 2-1-7]	ODOMETER Parameters	17
[Tab 2-1-8]	JOURNEY Parameters	17
[Tab 2-1-9]	JOURNEYALARM Parameters	18
[Tab 2-1-10]	SPEEDALARM Parameters	18
[Tab 2-1-11]	GEOSET Parameters	19
[Tab 2-1-12]	PANICALARM Parameters	19
[Tab 2-1-13]	REALTIME Parameters	19
[Tab 2-1-14]	SMSCONVERT Parameters	19
[Tab 2-2-1]	COMM Parameters	20
[Tab 2-2-2]	GPRS Parameters	20
[Tab 2-2-3]	SERVER Parameters	20
[Tab 2-2-4]	LOGGING Parameters	21
[Tab 2-2-5]	HISTORY Parameters	21
[Tab 2-2-6]	HIST Parameters	22
[Tab 2-2-7]	ODOMETER Parameters	22
[Tab 2-2-8]	JOURNEY Parameters	23
[Tab 2-2-9]	JOURNEYALARM Parameters	23

[Tab 2-2-10] SPEEDALARM Parameters.....	23
[Tab 2-2-11] GEOSSET Parameters.....	24
[Tab 2-2-12] PANICALARM Parameters	24
[Tab 2-2-13] REALTIME Parameters.....	24
[Tab 2-2-14]SMSCONVERT Parameters	24
[Tab 2-3]Get Parameter "GPRS Command".....	25
[Tab 2-4]Set Parameter "GPRS Command"	25
[Tab 3-1] Event List	27
[Tab 4-1] Control Command List	28
[Tab 4-2] &HISTORYCOUNT command	29
[Tab 4-3] &OUTPUT 1 command	30
[Tab 4-4] &OUTPUT 2 command	30
[Tab 4-5] Control command list via GPRS	30
[Tab 5-1] GPS Message Format.....	31
[Tab 5-2] Logging Message Format for E-Mail	32
[Tab 5-3] Journey Start Message	33
[Tab 5-4] Journey End Message	33
[Tab 5-5] Panic Message	33
[Tab 5-6] Over Speed Message	33

Figure Contents

[Fig 1-1] iTrac.....	7
[Fig 1-2] iTrac Back Side.....	10
[Fig 1-3] iTrac Cable Connector (Female).....	11
[Fig 1-4] iTrac Front Side	12
[Fig 1-5] iTrac HyperTerminal.....	14

1. Introduction

ITrac is tracking and safety control unit that designed with GSM with GPRS. You can monitor and control unit remotely via GSM wireless network.



[Fig 1-1] iTrac

1.1. Features

1.1.1. Communication

- GSM
 - SMS
 - GPRS
 - Support TCP/IP Protocol
- GPS
 - Support 20 GPS channels "all in view" tracking
- RS232C (USB)

1.1.2. Logging

- Normal Vehicle Activity
- Journey Activity
 - Journey Start
 - Idle Time

- Over Speed
- Journey End
- Event
 - Towing
- Security
 - Input Activity
 - Output Activity

1.1.3. Event

- Journey
 - Journey Start
 - Idle
 - Over Speed
 - Journey End
- Geographical
 - Towing
- Security
 - Input (1EA) Trigger
 - Output (2EA) Trigger

1.1.4. Reporting

- Current Location Report
- Real-Time Location Report
 - Ignition Off Status
 - Ignition On Status
 - Emergency Status
- History Report (via GPRS or E-Mail)
 - Auto Report (1 Time per Day)
 - On Demand Report

1.1.5. Alarm

- To Person
 - Journey
 - Start
 - End
 - Over Speed
 - Input Trigger (for PANIC Button)
- To Control System
 - Input Trigger
 - Towing
 - Low Battery (Internal, External)

1.1.6. Unit Configuration

- Set Unit Parameter
- Get Unit Parameter

1.2. Communication with iTrac

1.2.1. SMS

You can communicate with iTrac via general SMS. iTrac only can recognize pre-defined command format. Wrong format and advertise text will be ignored.

1.2.2. GPRS

You can communicate with iTrac via GPRS. This is designed for receive message, set and get all of command(parameter). Also some commands are designed for send special purpose command. Like history data download.

1.2.3. USB

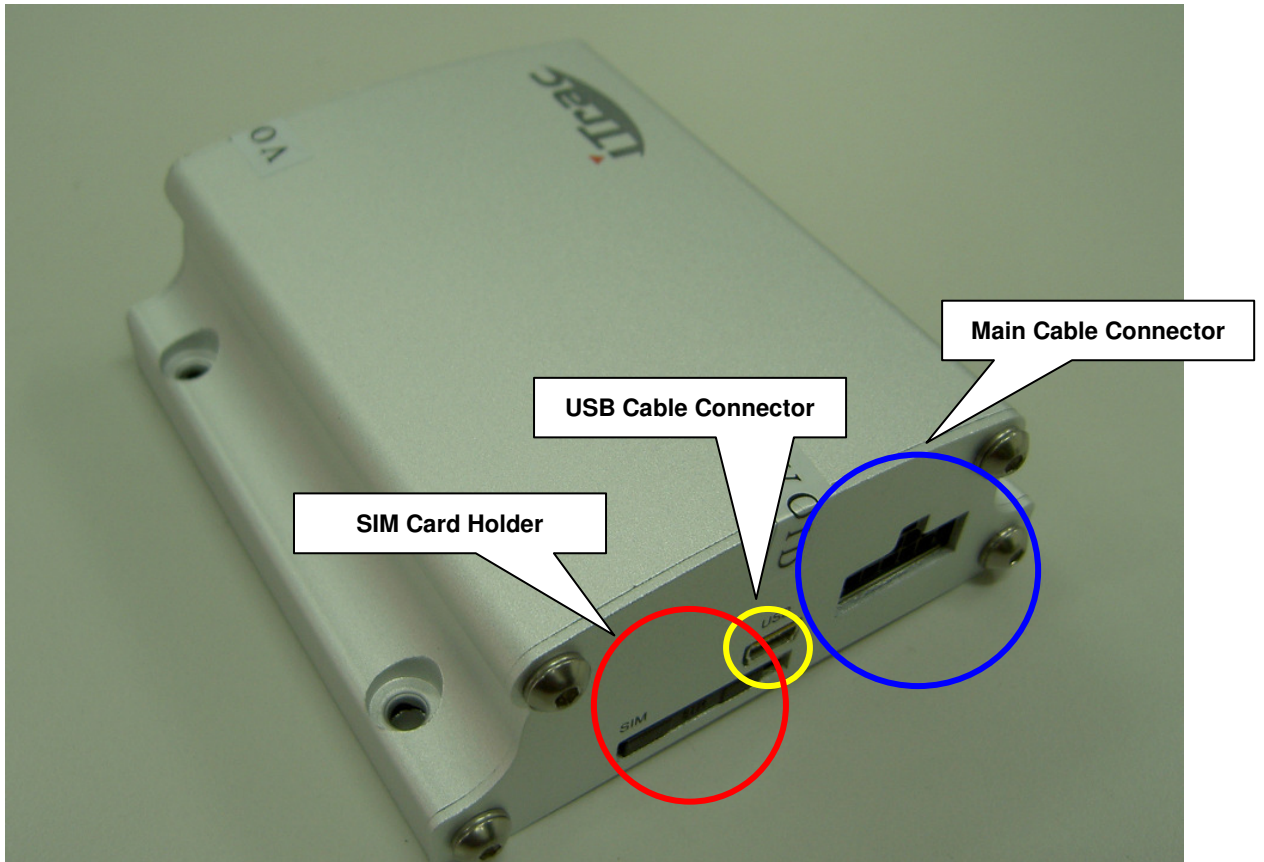
You can communicate with iTrac via RS232C port. This mode can monitor GSM module response and also you can set and get all of command.

When you try connecting RS232C communication, you have to set below communication options.

- Bits Per Second : 4800
- Data Bits : 8
- Parity : None
- Stop Bits : 1
- Flow Control : None

1.3. Mechanical Specification

1.3.1. Back Side Connector



[Fig 1-2] iTrac Back Side

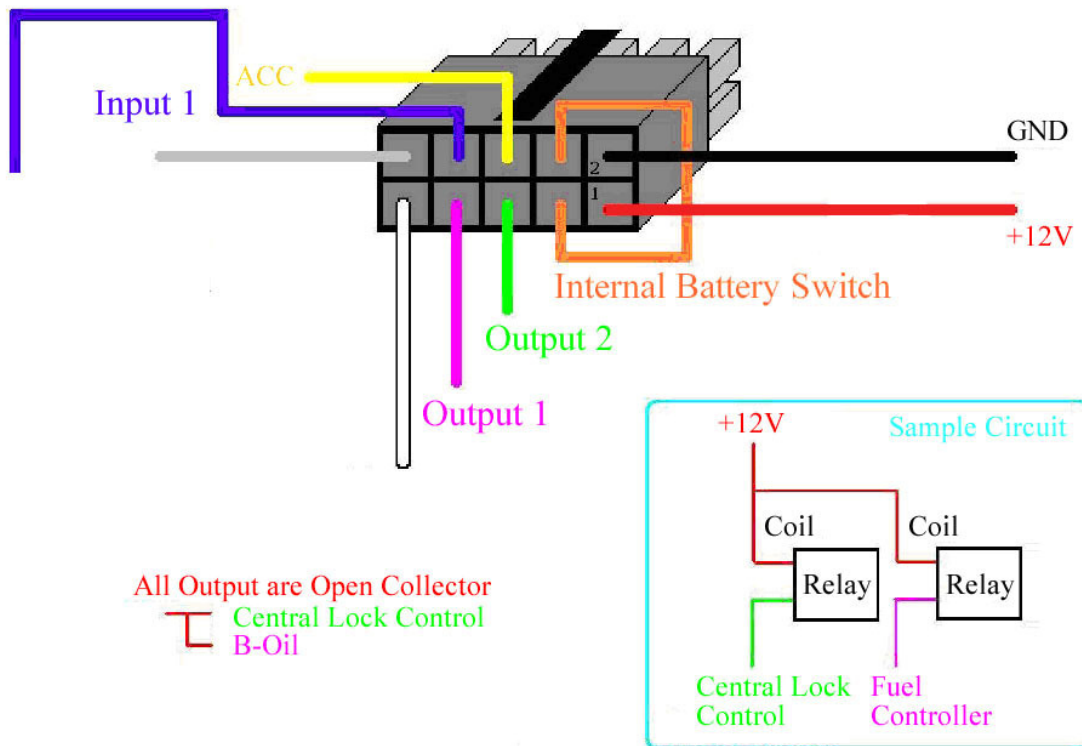
1.3.1.1. USB Cable Connector

USB type is MINI USB. This is for RS232C communication.

1.3.1.2. SIM Card Holder

You can eject SIM card by pushing small yellow button beside card holder.

1.3.1.3. iTrac Cable Connector



[Fig 1-3] iTrac Cable Connector (Female)

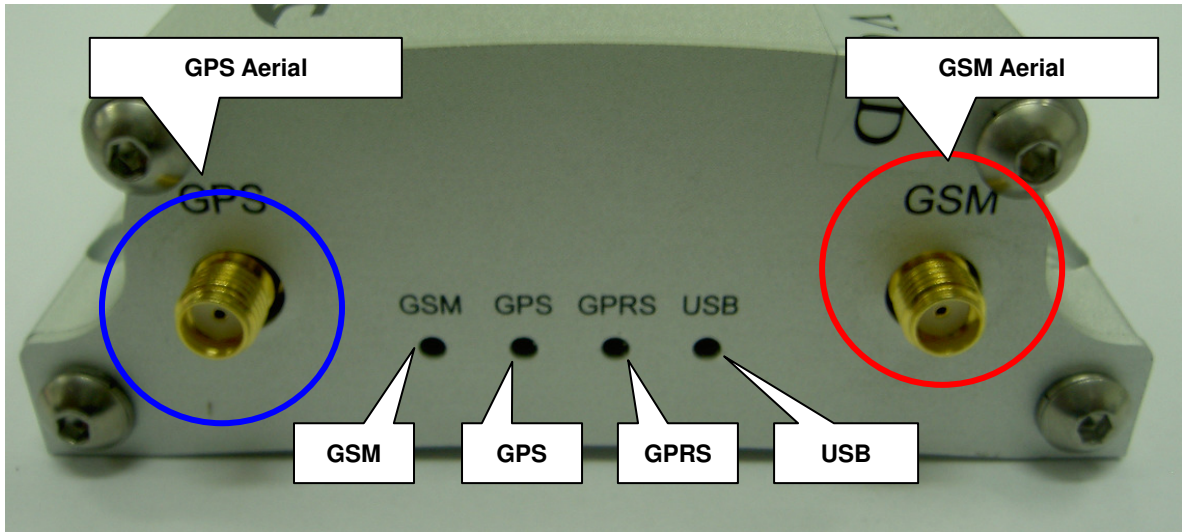
Fig 1-3 is cable connector shape but buzzer and central lock is just for example not compulsory.

[Tab 1-1] Cable Description

Color	Purpose	Description
RED	Main Power (+12V or +24V)	Input power for the unit must be 12 or 24 volts for the unit to operate properly;
BLACK	Earth	Wire to car chassis ground.
ORANGE	Battery Switch	Internal battery switch.
YELLOW	ACC	Wire to vehicle ignition.
BLUE	Input 1	Wire to Panic Button (max 200mAmp)
PINK	Output 1	Wire to 3 rd party product like Fuel Controller (max 250mAmp power)
GREEN	Output 2	Wire to 3 rd party product like Central Locking device (max 250mAmp power)
WHITE	Not In Use	
GRAY	Not In Use	

NOTE: USER needs to change the backup battery after 1 year of usage

1.3.2. Front Side Connector and LED



[Fig 1-4] iTrac Front Side

1.3.2.1. GSM Aerial

GSM antenna connector

1.3.2.2. GPS Aerial

GPS antenna connector

1.3.2.3. GSM LED

[Tab 1-2] GSM LED

Status	Function
0.3s ON / 0.5s OFF (Quick Flash)	No SIM card present / No PIN entered / Network login in processing
0.3s ON / 3s OFF (Slow Flash)	GSM network connected

1.3.2.4. GPS LED

[Tab 1-3] GPS LED

Status	Function
ON	No GPS signal received
0.3s ON / 2s OFF	GPS ready

1.3.2.5. GPRS LED

[Tab 1-4] GPRS LED

Status	Function
OFF	GPRS login in processing
ON	GPRS connected and start to use

1.3.2.6. USB LED

[Tab 1-5] USB LED

Status	Function
ON	RS232C cable connected.
OFF	RS232C cable disconnected

1.3.3. Characteristics

1.3.3.1. Physical Characteristics

[Tab 1-6] Physical Characteristics

Item	Description
Unit Size	95L * 89W * 35H (mm)
Weight	300g
Cover	Aluminum
Interface	2EA I/O, 1 Mini USB port (RS232C), 4 LED lights for GSM,GPS and GSM

1.3.3.2. Case Environmental Characteristics

[Tab 1-7] Case Environmental Characteristics

Item	Description
Operational Temperature	-35°C to +75°C (board temperature)
Storage Temperature	-45°C to +90°C

1.3.3.3. Electrical Characteristics

[Tab 1-8] Electrical Characteristics

Item	Description
GSM	900/1800 or 850/1800/1900
Input Voltage	+ 12V or + 24V DC
Power Consumption	Standby: 12 Volt – 20 mA ; 12 Volt – 30 mA (Peak) Transmitting: 12 Volt – 100 mA ; 12 Volt – 130 mA (Peak)
Backup Battery	Rechargeable Li Battery at 1000 mA
Backup Battery Life	6 Hours with GPS and Communication ONLINE - Depends on the battery age and last charge, approximate only
Memory Backup	Flash Memory 2MB (1000000 * 8 Bits data) Up to 20000 individual locations can be saved
Outputs	Two negative outputs (500mA max per output).
Inputs	Two inputs (active low / high to activate input).

1.3.3.4. GPS Specifications

[Tab 1-9] GPS Specifications

Item	Description
Frequency	L1, 1575.42 MHz
GPS gain	-159 dbm
Protocol	NMEA0183
Channels	20 Accuracy
Position	25 meters CEP without SA
How Start	<10 sec average
Warm Start	<38 sec average
Cold Start	<45 sec average

2. iTrac Configuration

You can set or get parameters via USB, SMS or GPRS communication.

2.1. Setting/Getting Parameters via USB

- Install USB driver (only for first time use)
- Connect USB cable between unit and pc, check comport number generate at “Device Manager/ Ports(COM&LPT)”
- Open the Hyper Terminal(Start/All Programs/Accessories/Communications/Hyperterminal), choose the right COM port, and set with parameters below:
 - Bits Per Second : 4800
 - Data Bits : 8
 - Parity : None
 - Stop Bits : 1
 - Flow Control : None
- Power ON unit.
- After succeed connect to iTrac, you would see the pictures like the following, then you can start set/get the parameters.

```
I-TRAC:\>
Bad Command!
I-TRAC ver 0.12 - 2006/12/25 - 033

&COMM,3,0000
&GPRS,internet,,
&SERVER,131313,131313,+886920213958,211.23.38.142,1313,+0800
&LOGGING,60
&HISTORY,e,1,211.23.38.138,211.23.38.142,8888
&JOURNEYALARM,1,+886920213958
&JOURNEY,1,10,100,120
&SPEEDALARM,1,+886920213958
&GEOSET,0
&PANICALARM,+886920213958
&REALTIME,300,60,10
&SMS CONVERT,1
&HIST,ccc@ccc.com,aaa@aaa.com,xxxx

slot_seq = 202, slot_id = 0

I-TRAC:\>

GPRS Module Start!
&comm,3,0000
<COMM Update OK>
I-TRAC:\>&logging,60
<LOGGING Update OK>
I-TRAC:\>&geoset,0_
```

[Fig 1-5] iTrac HyperTerminal

NOTE: All the parameters would remain the same after upgrading the firm

ware.

NOTE: When USB cable connected, all GPS location will be appear as 00 00.0000,N,00000.0000,E. Please unplug USB cable to get valid GPS location.

2.1.1. GSM Module Setting

GSM module in iTrac is programmable tri-band. So before the using you have to set band and pin number of GSM module to use.

[Tab 2-1-1] COMM Parameters

&COMM		
FORMAT	GET	&COMM
	SET	&COMM,BAND,PIN NUMBER
BAND	X (1 Digit)	
	0	PGSM 900
	1	1800
	2	GSM850+1900/PGSM900+1800
	3	EGSM900+1800
PIN NUMBER	XXXX (4 Digits)	
	Some mobile network needs PIN number.	
EXAMPLE	&COMM,3,0000	

2.1.2. GPRS Setting

This is for GPRS connection.

[Tab 2-1-2] GPRS Parameters

&GPRS		
FORMAT	GET	&GPRS
	SET	&GPRS,APN,User ID,Password
APN	String (Max 30 characters)	
	GPRS access pointer name	
User ID	String (Max 8 characters)	
	GPRS user id	
User ID	String (Max 8 characters)	
	GPRS password	
EXAMPLE	&GPRS,orangeinternet,user,pass	

2.1.3. Control Center Setting

Control Center means software system that controls iTrac. iTrac has to know Control Center information to report status and events.

[Tab 2-1-3] SERVER Parameters

&SERVER

FORMAT	GET	&SERVER
	SET	&SERVER,iTrac ID,iTrac Nick Name,SMS NUMEBR,IP Address,Port Number,Time difference
iTrac ID	XXXXXX (6 Digits)	
	Identification Code for Control Center.	
iTrac Nick Name	Max 8 Characters	
	iTrac Nick Name	
SMS Number	+XXXXXXXXXXXXXX (Max 14 Digits - Exclude "+")	
	Control Center Modem SMS Number (Have to start with "+")	
IP Address	XXX.XXX.XXX.XXX	
	Control Center IP Address ("0.0.0.0" means no IP address)	
Port Number	XXXX (4 Digits)	
	Control Center Port Number ("0000" means no Port Number)	
Time Difference	+XXXX (4 Digits – Exclude "+")	
	Time Difference	
EXAMPLE	&SERVER,000001,CHT,+886936123456,211.23.38.142,6060,+0830	

2.1.4. History Logging Setting

History logging options

[Tab 2-1-4] LOGGING Parameters

&LOGGING		
FORMAT	GET	&LOGGING
	SET	&LOGGING,Logging Interval.
Logging Interval	0,10~86400 (Numeric)	
	Logging Interval – Second (0 means No Logging, Minimum Interval is 10 seconds Maximum is 1 day)	
EXAMPLE	&LOGGING,60	

2.1.5. History Setting

History report type and option parameters.

[Tab 2-1-5] HISTORY Parameters

&HISTORY		
FORMAT	GET	&HISTORY
	SET	&HISTORY,Report Type,Auto Reporting,SMTP IP Address,GPRS IP Address, GPRS Port Number
Report Type	X (1 Character)	
	E	Email Reporting
	G	GPRS Reporting
Auto Reporting	X (1 Digit)	
	0	Disable Auto Reporting
	1	Enable Auto Reporting
SMTP	XXX.XXX.XXX.XXX	
IP Address	SMTP Server IP Address ("0.0.0.0" means no IP address)	
GPRS	XXX.XXX.XXX.XXX	

IP Address	GPRS Server IP Address ("0.0.0.0" means no IP address)
GPRS	XXXX (4 Digits)
Port Number	GPRS Server Port Number ("0000" means no Port Number)
EXAMPLE	&HISTORY,E,211.23.38.138,211.23.38.142,8080

If you set "Auto Reporting" to "1", iTrac will report history once a day at calculated local time.

[Calculated Local Time]

(Last Digit of iTrac ID * 15 Minutes) + (Local Time 00:00:00)

Local time can be calculated by time difference value in &SERVER parameter

If iTrac ID is "001545", it will report history at 01:15:00

2.1.6. E-Mail ID Setting

E-Mail ID and user information for E-Mail type history reporting.

[Tab 2-1-6] HIST Parameters

&HIST		
FORMAT	GET	&HIST
	SET	&HIST,To E-Mail ID,User ID,Password
To E-Mail ID	Max 30 Characters	
	E-Mail Report Recipient E-Mail ID	
User ID	Max 30 Characters	
	User ID for SMTP Authentication.	
Password	Max 30 Characters	
	Password for SMTP Authentication.	
EXAMPLE	&HSIT,iTrac@control.com,iTrac@control.com,iTracpass	

NOTE: USER ID has to set the completely E-mail address.

2.1.7. Odometer Setting

Initialize Odometer value. After initialize, odometer will be accumulated automatically using GPS information.

[Tab 2-1-7] ODOMETER Parameters

&ODOMETER		
FORMAT	GET	&ODOMETER
	SET	&ODOMETER,Odometer Value
Odometer Value	0~999999999	
	Odometer value. (Meter)	
EXAMPLE	&ODOMETER,45000	

2.1.8. Journey Setting

Journey detect options. It's for journey activity detect.

[Tab 2-1-8] JOURNEY Parameters

&JOURNEY		
FORMAT	GET	&JOURNEY
	SET	&JOURNEY,Logging Enable,Journey Start Speed,Over Speed Limit,Idle Hold Time
Logging Enable	X (1 Digit)	
	0	Disable Journey Logging
	1	Enable Journey Logging
Start Speed	Max 3 Digits	
	Journey start speed. (Kilometer Per Hour)	
Over Speed Limit	Max 3 Digits	
	Over speed limit. (Kilometer Per Hour)	
Idle Hold Time	Max 3 Digits	
	Idle Hold Time. (Seconds)	
EXAMPLE	&JOURNEY,1,5,120,120	

2.1.9. Journey Alarm Setting

Journey Alarm report.

[Tab 2-1-9] JOURNEYALARM Parameters

&JOURNEYALARM		
FORMAT	GET	&JOURNEYALARM
	SET	&JOURNEYALARM,Enable,Report SMS Number
Enable	X (1 Digit)	
	0	Disable Journey Alarm
	1	Enable Journey Alarm
Report	+XXXXXXXXXXXXXX (Max 14 Digits - Exclude "+")	
SMS Number	Report person SMS Number (Have to start with "+")	
EXAMPLE	&JOURNEYALARM,1,+886936123456	

2.1.10. Over Speed Alarm Setting

Over-Speed Alarm report.

[Tab 2-1-10] SPEEDALARM Parameters

&SPEEDALARM		
FORMAT	GET	&SPEEDALARM
	SET	&SPEEDALARM,Enable,Report SMS Number
Enable	X (1 Digit)	
	0	Disable Journey Alarm
	1	Enable Journey Alarm
Report	+XXXXXXXXXXXXXX (Max 14 Digits - Exclude "+")	
SMS Number	Report person SMS Number (Have to start with "+")	
EXAMPLE	&SPEEDALARM,1, +886936123456	

2.1.11. Geographical Control Setting

Geographical functions activate.

[Tab 2-1-11] GEOSET Parameters

&GEOSET		
FORMAT	GET	&GEOSET
	SET	&GEOSET,Towing Enable,Geo-Fence Enable
Towing Enable	X (1 Digit)	
	0	Disable Towing Check
	1	Enable Towing Check
EXAMPLE	&GEOSET,1	

2.1.12. Panic Alarm Setting

When driver triggered Panic (Input1), iTrac report to control center and send message to person who registered.

[Tab 2-1-12] PANICALARM Parameters

&PANICALARM		
FORMAT	GET	&PANICALARM
	SET	&PANICALARM,Report SMS Number
Report	+XXXXXXXXXXXXXX (Max 14 Digits - Exclude "+")	
SMS Number	Report person SMS Number (Have to start with "+")	
EXAMPLE	&PANICALARM, +886936123456	

2.1.13. Real Time Reporting Setting

Real time reporting interval options.

[Tab 2-1-13] REALTIME Parameters

&REALTIME		
FORMAT	GET	&REALTIME
	SET	&REALTIME,Ignition Off Interval, Ignition On Interval, Emergency Interval
Ignition Off Interval	0~86400 (Seconds)	
	Reporting Interval during the ignition off – Not Driving	
Ignition On Interval	0~86400 (Seconds)	
	Reporting Interval during the ignition on - Driving	
Emergency Interval	0~86400 (Seconds)	
	Reporting Interval during emergency status. – Input1 has been triggered	
EXAMPLE	&REALTIME,0,60,10	

iTrac input1 designed for Panic Button. So when input1 is triggered, iTrac goes to emergency status.

2.1.14. SMS CONVERT

[Tab 2-1-14] SMSCONVERT Parameters

&SMSCONVERT		
FORMAT	GET	&SMSCONVERT
	SET	&SMSCONVERT,Auto Convert

Auto Convert	0 : Real-Time tracking will be sent only via GPRS
	1 : When GPRS connection is broken, Real-Time tracking message will be converted to SMS
EXAMPLE	&SMS CONVERT,0

2.2. Getting and Setting Parameters via SMS

2.2.1. GSM Module Setting

GSM module in iTrac is programmable tri-band. So before the using you have to set band and pin number of GSM module to use.

[Tab 2-2-1] COMM Parameters

&COMM		
FORMAT	GET	&COMM
	SET	&COMM,BAND,PIN NUMBER
BAND	X (1 Digit)	
	0	PGSM 900
	1	1800
	2	GSM850+1900/PGSM900+1800
	3	EGSM900+1800
	4	EGSM900+1900
PIN NUMBER	XXXX (4 Digits)	
	Some mobile network needs PIN number.	
EXAMPLE	&COMM,3,0000	

2.2.2. GPRS Setting

This is for GPRS connection.

[Tab 2-2-2] GPRS Parameters

&GPRS		
FORMAT	GET	&GPRS
	SET	&GPRS,APN,User ID,Password
APN	String (Max 30 characters)	
	GPRS access pointer name	
User ID	String (Max 8 characters)	
	GPRS user id	
User ID	String (Max 8 characters)	
	GPRS password	
EXAMPLE	&GPRS,orangeinternet,user,pass	

2.2.3. Control Center Setting

Control Center means software system that controls iTrac. iTrac has to know Control Center information to report status and events.

[Tab 2-2-3] SERVER Parameters

&SERVER		
FORMAT	GET	&SERVER
	SET	&SERVER,iTrac ID,iTrac Nick Name,SMS NUMEBR,IP Address,Port Number,Time difference
iTrac ID	XXXXXX (6 Digits)	
	Identification Code for Control Center.	
iTrac Nick Name	Max 8 Characters	
	iTrac Nick Name	
SMS Number	+XXXXXXXXXXXXXX (Max 14 Digits - Exclude "+")	
	Control Center Modem SMS Number (Have to start with "+")	
IP Address	XXX.XXX.XXX.XXX	
	Control Center IP Address ("0.0.0.0" means no IP address)	
Port Number	XXXX (4 Digits)	
	Control Center Port Number ("0000" means no Port Number)	
Time Difference	+XXXX (4 Digits – Exclude "+")	
	Time Difference	
EXAMPLE	&SERVER,000001,CHT,+886936123456,211.23.38.142,6060,+0830	

2.2.4. History Logging Setting

History logging options

[Tab 2-2-4] LOGGING Parameters

&LOGGING		
FORMAT	GET	&LOGGING
	SET	&LOGGING,Logging Interval.
Logging Interval	0,10~86400 (Numeric)	
	Logging Interval – Second (0 means No Logging, Minimum Interval is 10 seconds Maximum is 1 day)	
EXAMPLE	&LOGGING,60	

2.2.5. History Setting

History report type and option parameters.

[Tab 2-2-5] HISTORY Parameters

&HISTORY		
FORMAT	GET	&HISTORY
	SET	&HISTORY,Report Type,Auto Reporting,SMTP IP Address,GPRS IP Address, GPRS Port Number
Report Type	X (1 Character)	
	E	Email Reporting
	G	GPRS Reporting
Auto Reporting	X (1 Digit)	
	0	Disable Auto Reporting
	1	Enable Auto Reporting
SMTP IP Address	XXX.XXX.XXX.XXX	
	SMTP Server IP Address ("0.0.0.0" means no IP address)	

GPRS	XXX.XXX.XXX.XXX
IP Address	GPRS Server IP Address ("0.0.0.0" means no IP address)
GPRS	XXXX (4 Digits)
Port Number	GPRS Server Port Number ("0000" means no Port Number)
EXAMPLE	&HISTORY,E,211.23.38.138,211.23.38.142,8080

If you set "Auto Reporting" to "1", iTrac will report history once a day at calculated local time.

[Calculated Local Time]

(Last Digit of iTrac ID * 15 Minutes) + (Local Time 00:00:00)

Local time can be calculated by time difference value in &SERVER parameter

If iTrac ID is "001545", it will report history at 01:15:00

2.2.6. E-Mail ID Setting

E-Mail ID and user information for E-Mail type history reporting.

[Tab 2-2-6] HIST Parameters

&HIST		
FORMAT	GET	&HIST
	SET	&HIST,To E-Mail ID,User ID>Password
To E-Mail ID	Max 30 Characters	
	E-Mail Report Recipient E-Mail ID	
User ID	Max 30 Characters	
	User ID for SMTP Authentication.	
Password	Max 30 Characters	
	Password for SMTP Authentication.	
EXAMPLE	&HSIT,iTrac@control.com,iTrac@control.com,iTracpass	

NOTE: USER ID has to set the completely E-mail address.

2.2.7. Odometer Setting

Initialize Odometer value. After initialize, odometer will be accumulated automatically using GPS information.

[Tab 2-2-7] ODOMETER Parameters

&ODOMETER		
FORMAT	GET	&ODOMETER
	SET	&ODOMETER,Odometer Value
Odometer Value	0~999999999	
	Odometer value. (Meter)	
EXAMPLE	&ODOMETER,45000	

2.2.8. Journey Setting

Journey detect options. It's for journey activity detect.

[Tab 2-2-8] JOURNEY Parameters

&JOURNEY		
FORMAT	GET	&JOURNEY
	SET	&JOURNEY,Logging Enable,Journey Start Speed,Over Speed Limit,Idle Hold Time
Logging Enable	X (1 Digit)	
	0	Disable Journey Logging
	1	Enable Journey Logging
Start Speed	Max 3 Digits	
	Journey start speed. (Kilometer Per Hour)	
Over Speed Limit	Max 3 Digits	
	Over speed limit. (Kilometer Per Hour)	
Idle Hold Time	Max 3 Digits	
	Idle Hold Time. (Seconds)	
EXAMPLE	&JOURNEY,1,5,120,120	

2.2.9. Journey Alarm Setting

Journey Alarm report.

[Tab 2-2-9] JOURNEYALARM Parameters

&JOURNEYALARM		
FORMAT	GET	&JOURNEYALARM
	SET	&JOURNEYALARM,Enable,Report SMS Number
Enable	X (1 Digit)	
	0	Disable Journey Alarm
	1	Enable Journey Alarm
Report	+XXXXXXXXXXXXXX (Max 14 Digits - Exclude "+")	
SMS Number	Report person SMS Number (Have to start with "+")	
EXAMPLE	&JOURNEYALARM,1,+886936123456	

2.2.10. Over Speed Alarm Setting

Over-Speed Alarm report.

[Tab 2-2-10] SPEEDALARM Parameters

&SPEEDALARM		
FORMAT	GET	&SPEEDALARM
	SET	&SPEEDALARM,Enable,Report SMS Number
Enable	X (1 Digit)	
	0	Disable Journey Alarm
	1	Enable Journey Alarm
Report	+XXXXXXXXXXXXXX (Max 14 Digits - Exclude "+")	
SMS Number	Report person SMS Number (Have to start with "+")	
EXAMPLE	&SPEEDALARM,1, +886936123456	

2.2.11. Geographical Control Setting

Geographical functions activate.

[Tab 2-2-11] GEOSET Parameters

&GEOSET		
FORMAT	GET	&GEOSET
	SET	&GEOSET,Towing Enable,Geo-Fence Enable
Towing Enable	X (1 Digit)	
	0	Disable Towing Check
	1	Enable Towing Check
EXAMPLE	&GEOSET,0	

2.2.12. Panic Alarm Setting

When driver triggered Panic (Input1), iTrac report to control center and send message to person who registered.

[Tab 2-2-12] PANICALARM Parameters

&PANICALARM		
FORMAT	GET	&PANICALARM
	SET	&PANICALARM,Report SMS Number
Report	+XXXXXXXXXXXXX (Max 14 Digits - Exclude "+")	
SMS Number	Report person SMS Number (Have to start with "+")	
EXAMPLE	&PANICALARM, +886936123456	

2.2.13. Real Time Reporting Setting

Real time reporting interval options.

[Tab 2-2-13] REALTIME Parameters

&REALTIME		
FORMAT	GET	&REALTIME
	SET	&REALTIME,Ignition Off Interval, Ignition On Interval, Emergency Interval
Ignition Off Interval	0~86400 (Seconds)	
	Reporting Interval during the ignition off – Not Driving	
Ignition On Interval	0~86400 (Seconds)	
	Reporting Interval during the ignition on - Driving	
Emergency Interval	0~86400 (Seconds)	
	Reporting Interval during emergency status. – Input1 has been triggered	
EXAMPLE	&REALTIME,0,60,10	

iTrac input1 designed for Panic Button. So when input1 is triggered, iTrac goes to emergency status.

2.2.14. SMS CONVERT

[Tab 2-2-14] SMS CONVERT Parameters

&SMS CONVERT

FORMAT	GET	&SMS CONVERT
	SET	&SMS CONVERT,Auto Convert
Auto Convert	0 : Real-Time tracking will be sent only via GPRS	
	1 : When GPRS connection is broken, Real-Time tracking message will be converted to SMS	
EXAMPLE	&SMS CONVERT,0	

2.3. Getting and Setting Parameters via GPRS

[Tab 2-3] Get Parameters GPRS Commands

GET PARAMETER COMMAND	UNIT RESPOND EXAMPLE
+CMD:COMM	111111,&COMM,3,0000
+CMD:GPRS	111111,&GPRS,internet,,
+CMD:SERVER	111111,&SERVER,111111,AAAAAA,+886920212345,211.23.32.128,1111,+0800
+CMD:UPGRADESERVER	111111,&UPGRADESERVER,211.23.32.128,6600
+CMD:LOGGING	111111,&LOGGING,30
+CMD:HISTORY	111111,&HISTORY,G,1,211.23.38.138,211.23.32.128,8888
+CMD:HIST	111111,&HIST,ervina@chengholin.com.tw,,
+CMD:ODOMETER	111111,&ODOMETER,3551
+CMD:JOURNEY	111111,&JOURNEY,1,10,80,120
+CMD:JOURNEYALARM	111111,&JOURNEYALARM,0,+886920212345
+CMD:SPEEDALARM	111111,&SPEEDALARM,0,+886920212345
+CMD:GEOSET	111111,&GEOSET,0
+CMD:PANICALARM	111111,&PANICALARM,+886920212345
+CMD:REALTIME	111111,&REALTIME,240,240,240
+CMD:SMS CONVERT	111111,&SMS CONVERT,0

[Tab 2-4] Set Parameters GPRS Commands

SET PARAMETER COMMAND	UNIT RESPOND EXAMPLE
+CMD:COMM,3,0000	111111,&COMM,3,0000
+CMD:GPRS,internet,,	111111,&GPRS,internet,,
+CMD:SERVER,111111,AAAAAA,+886920212345,211.23.32.128,1111,+0800	111111,&SERVER,111111,AAAAAA,+886920212345,211.23.32.128,1111,+0800
+CMD:LOGGING	111111,&LOGGING,30
+CMD:HISTORY,G,1,211.23.38.138,211.23.32.128,8888	111111,&HISTORY,G,1,211.23.38.138,211.23.32.128,8888
+CMD:HIST,ervina@chengholin.com.tw,service@chengholin.com.tw,	111111,&HIST,ervina@chengholin.com.tw,service@chengholin.com.tw,
+CMD:ODOMETER,3551	111111,&ODOMETER,3551
+CMD:JOURNEY,1,10,80,120	111111,&JOURNEY,1,10,80,120
+CMD:JOURNEYALARM,0,+886920212345	111111,&JOURNEYALARM,0,+886920212345
+CMD:SPEEDALARM,0,+886920212345	111111,&SPEEDALARM,0,+886920212345
+CMD:GEOSET,0	111111,&GEOSET,0

+CMD: PANICALARM,+886920212345	111111,&PANICALARM,+886920212345
+CMD: REALTIME,240,240,240	111111,&REALTIME,240,240,240
+CMD: SMS CONVERT,0	111111,&SMS CONVERT,0

3. Event

3.1. Event List

[Tab 3-1] Event List

Seq.	Event Name	Event ID	Remarks
1	Normal	00	Normal logging
2	Journey Start	11	
3	Journey End	12	
4	Over Speed	13	
5	Idle Time	14	
6	Log data	20	80% of log data has been saved
7	Log data	21	90% of log data has been saved - When log data is 100% firmware will automatically erasing the entire log
8	Towing	30	
9	Output1 ->0	60	
10	Output1 ->1	61	
11	Output2 ->0	70	
12	Output2 ->1	71	
13	Input1	80	
14	Emergency status	81	In emergency status (Input1 has been triggered), all real-time messages have "81" status code, and emergency status will not turn off until get "&PANICOFF" command.
15	External Battery Low	91	Under 8V
16	Internal Battery Low	90	Under 3.4V.

3.1.1. Normal Event

This is not an event actually; normal event means just logging current activity.

3.1.2. Journey Start

If you set journey detect on in &JOURNEY parameter, journey start event will be triggered when vehicle moving over than journey start speed.

Journey started SMS message will be sent to person who registered in &JOURNEYALARM parameter.

3.1.3. Journey End

If vehicle triggered journey end event, journey end event will be triggered by ignition off.

Journey end SMS message will be sent to person who registered in &JOURNEYALARM parameter.

3.1.4. Over Speed

When vehicle exceeds over speed limit, over speed event will be triggered

Over speed SMS message will be sent to person who registered in &SPEEDALARM parameter.

3.1.5. Idle Time

When vehicle stopping over than idle hold time in &JOURNEY parameter, Idle Time event will be triggered. Idle time event occur during the journey only. This event doesn't report to anybody, just logging. You can analyze this after download history data.

3.1.6. Towing

Towing means vehicle moving over 5 kilometers per hour without ignition start. It can be regarded as somebody stealing vehicle and report to control center. If you set off towing alarm on &GETSET parameter, towing event will not be triggered.

** As known as sometimes GPS signal can acquire wrong information and this is caused of towing event. If you don't want to get this message, just set off towing alarm parameter.*

iTrac report to control center following reporting rule, when this event occurred.

3.1.7. Output Status Change

2EA Digital output in iTrac is designed for security concern. These will be wired fuel control and door sensor etc and controlled by remotely. These actions logs location and status automatically. It doesn't report to anybody, just logging. You can analyze this after download history data.

3.1.8. Input Trigger

If action is triggered device that wired with input digital cable, iTrac logs location and status. But iTrac input is designed for PANIC button, so iTrac send panic SMS message to person who registered in &PANICALARM parameter.

iTrac report to control center following reporting rule, when this event occurred.

3.1.9. Internal Battery Low

iTrac has backup battery inside and it for emergency purpose. If battery juice goes under 3.4 voltages, iTrac logs location and status and report to control center. When you get this message, you have to check device. If you don't device will not working in 30 minutes.

3.1.10. External Battery Low

iTrac is wired with vehicle main battery to get working power. If vehicle battery goes under 9 voltages, iTrac logs location and status. When you get this message, you have to check your vehicle.

iTrac report to control center following reporting rule, when this event occurred.

4. Control Command

4.1. Control Command List via USB / SMS

[Tab 4-1] Control Command List

Seq.	Control Command	Description
1	&LOCATION	Request current location and status command
2	&REBOOT	Reboot unit command

3	&HISTORYCOUNT	Get logged history data count command
4	&HISTORYREPORT	Execute history report command. (via E-Mail or GPRS)
5	&HISTORYDELETE	Delete logged history data command.
6	&VERSION	Get current unit firmware version
7	&OUTPUT	Control digital output
8	&PANICOFF	Reset emergency situation to normal

4.1.1. &LOCATION

Command that requests current location and status information from iTrac. When iTrac receive this command, it generates &GPS format message and send it to requester.

4.1.2. &REBOOT

When iTrac receive this command it will send SMS message to requestor and reboot system immediately. SMS message is just "REBOOT" text. So you can decide command work properly.

4.1.3. &HISTORYCOUNT

Command that requests current logged history count. When iTrac receive this command, it will return current history count.

[Tab 4-2] &HISTORYCOUNT command

&HISTORYCOUNT		
FORMAT	Command	&HISTORYCOUNT
	Return	&HISTORYCOUNT,Current History Count
Current History Count	Numeric	
	Current logged history record count.	
EXAMPLE	&HISTORYCOUNT,1254	

4.1.4. &HISTORYREPORT

Command that requests history reporting; when iTrac receive this command, it will try history reporting via pre defined method immediately. Also you can get history data by set auto-report option in &HISTORY parameter once a day. Refer to History Message section.

4.1.5. &HISTORYDELETE

Command that requests history deletes. It will clear logged data.

4.1.6. &VERSION

When iTrac receive this command, it will return current firmware version like "20060103-03".

4.1.7. &OUTPUT

Command to controls output

[Tab 4-3] &OUTPUT 1 command

&OUTPUT		
FORMAT	GET	&OUTPUT
	Return	& OUTPUT,sequence,Active time,Active
sequence	1	

	Output sequence	
Active time	X(1 Digit)	
	0	Active when ACC OFF
Active	Y(1 Digit)	
	0	Output deactive
	1	Output active
EXAMPLE	&OUTPUT,1,0,1	

NOTE: For safety reason Output 1 can only execute when ACC off, because normally OUTPUT 1 connect to fuel controller.

[Tab 4-4] &OUTPUT 2 command

&OUTPUT		
FORMAT	GET	&OUTPUT
	Return	& OUTPUT,sequence,Active time,Active
sequence	2	
	Output sequence	
Active time	X(1 Digit)	
	0	Active when ACC OFF
	1	Active without delay
Active	Y(1 Digit)	
	0	Output deactive
	1	Output active
EXAMPLE	&OUTPUT,2,0,1	

4.1.8. &PANICOFF

Command that requests back to online/offline mode from emergency mode.

ITrac enter emergency mode if detect input1 active.

4.2. Control Command List via GPRS

[Tab 4-5] Control Command via GPRS

CONTROL COMMAND	UNIT RESPOND EXAMPLE
+CMD:LOCATION	111111,&GPS,111111,130606,022205,2504.8262,N,12134.0613,E,21,290,3551,0,00
+CMD:REBOOT	111111,REBOOT
+CMD:HISTORYCOUNT	111111,&HISTORYCOUNT,160
+CMD:HISTORYREPORT	111111,&HISTORYREPORT
+CMD:HISTORYDELETE	111111,&HISTORYDELETE
+CMD:VERSION	111111,20060428-01
+CMD:OUTPUT	111111,&OUTPUT,1,0,0 &OUTPUT,2,1,0
+CMD:PANICOFF	111111,&PANICOFF

5. Message Format

5.1. Normal Message

Normal message comes in when iTrac received "&LOCATION" command and reporting event triggered.

[Tab 5-1] GPS Message Format

&GPS	
FORMAT	&GPS,Unit ID,Date,Time,Latitude,N/S,Longitude,E/W,Speed,Heading,Odometer,Idle Time,Event ID
Unit ID	XXXXXX(6 Digits)
	Unit ID value from &SERVER parameter.
Date	XXXXXX(6 Digits) – XX(Day) XX(Month) XX(Year)
	Date value from GPS information
Time	XXXXXX(6 Digits) – XX(Hour) XX(Minute) XX(Second)
	Time value from GPS information
Latitude	DDMM.MMMM
	Latitude value from GPS information
N/S	1 Character
	N North
	S South
Longitude	DDDMM.MMMM
	Longitude value from GPS information
E/W	1 Character
	E East
	W West
Speed	Numeric
	Speed value from GPS information (Kilometer)
Heading	Numeric
	Heading value from GPS information (°)
Odometer	Numeric
	Current odometer value. (Meter)
Idle Time	Numeric
	Idle Time value when Idle event occurred. Except idle event it is 0 (Second)
Event ID	XX
	Pre defined event id
EXAMPLE	&GPS,000001,051106,183040,1234.5678,N,12345.6789,E,120,78,456248, 0,00

5.2. Logging Message

iTrac logging information, if you set up &LOGGING parameter on. Also iTrac logging information, when event triggered.

[Tab 5-2] Logging Message Format for E-Mail

&LOG	
FORMAT	&LOG,Unit ID,Date,Time,Latitude,N/S,Longitude,E/W,Speed,Heading,Odometer,Idle Time,Event ID
Unit ID	XXXXXX(6 Digits)
	Unit ID value from &SERVER parameter.
Date	XXXXXX(6 Digits) – XX(Day) XX(Month) XX(Year)
	Date value from GPS information
Time	XXXXXX(6 Digits) – XX(Hour) XX(Minute) XX(Second)
	Time value from GPS information
Latitude	DDMM.MMMM
	Latitude value from GPS information
N/S	1 Character
	N North
	S South
Longitude	DDDMM.MMMM
	Longitude value from GPS information
E/W	1 Character
	E East
	W West
Speed	Numeric
	Speed value from GPS information (Kilometer)
Heading	Numeric
	Heading value from GPS information (°)
Odometer	Numeric
	Current odometer value. (Meter)
Idle Time	Numeric
	Idle Time value when Idle event occurred. Except idle event it is 0 (Second)
Event ID	XX
	Pre defined event id
EXAMPLE	&LOG,000001,051106,183040,1234.5678,N,12345.6789,E,120,78,456248,10,14

5.3. History Message

History report's format is for E-Mail, GPRS and USB. Report format is same as logging message format.

5.4. Alarm Message

5.4.1. To Person

[Tab 5-3] Journey Start Message

"Unit id : Unit Nick Name" HAS BEEN STARTED JOURNEY ON Date Time	
Unit ID	XXXXXX(6 Digitrs)
	Unit ID value from &SERVER parameter.
Unit Nick Name	String
	Nick Name value from &SERVER parameter
Date	XXXXXX
	Date value from GPS information when journey start event occurred. (Local Date)
Time	XXXXXX
	Time value from GPS information when journey start event occurred. (Local Time)

[Tab 5-4] Journey End Message

"Unit id : Unit Nick Name" HAS BEEN FINISHED JOURNEY ON DATE TIME	
Unit ID	XXXXXX(6 Digitrs)
	Unit ID value from &SERVER parameter.
Unit Nick Name	String
	Nick Name value from &SERVER parameter
Date	XXXXXX
	Date value from GPS information when journey end event occurred. (Local Date)
Time	XXXXXX
	Time value from GPS information when journey end event occurred. (Local Time)

[Tab 5-5] Panic Message

"Unit id : Unit Nick Name" SEND PANIC ALARM ON	
Unit ID	XXXXXX(6 Digitrs)
	Unit ID value from &SERVER parameter.
Unit Nick Name	String
	Nick Name value from &SERVER parameter

NOTE: PANICALARM would keep sending SMS to the preset phone number when someone trigger the panic button, until the iTrac receive the command "panicoff", then iTrac would stop sending.

[Tab 5-6] Over Speed Message

"Unit id : Unit Nick Name" EXCEEDS OVER SPEED LIMIT (Over Speed Limit) ON DATE TIME	
Unit ID	XXXXXX(6 Digitrs)
	Unit ID value from &SERVER parameter.
Unit Nick Name	String

	Nick Name value from &SERVER parameter
Over Speed Limit	Numeric
	Over speed limit value from &JOURNEYT parameter
Date	XXXXXX
	Date value from GPS information when over speed event occurred. (Local Date)
Time	XXXXXX
	Time value from GPS information when over speed event occurred. (Local Time)

5.4.2. To Control Center

iTrac use &GPS format message for reporting to control center.

5.5. Convert DDMM.MMMM and DDDMM.MMMM to D.d or DMS

Example: 2500.1472 is in DDMM.MMMM format

[To convert to D.d]

Divide MM.MMMM by 60 to get .d ($0.1472/60 = 0.0024$)

Add .d to D to get D.d -> 25.0024 (Decimal degrees)

[To convert to DMS]

Multiply .MMMM by 60 to get S ($0.1472 * 60 = 8$)

25 degrees, 0 minutes and 8 Seconds

6. iTrac Reporting Rule

iTrac has following 4 kinds of communication status. These statuses are in view of control center's status not iTrac. iTrac has got all communication ability in itself, but will be defined by &SERVER parameter.

6.1. Wired Mode

You can control iTrac via RS232C communication. Under this mode, all response from iTrac can be monitored simple COM communication program like "Hyper Terminal"

6.2. SMS Only Mode

Unless otherwise connected with the internet, control center will not be able to use GPRS communication. Therefore the only way to control iTrac is GSM modem via SMS. So control center has to connect with GSM modem.

Under this control center, iTrac only report to control center via SMS.

You can't get history data on SMS only mode.

6.3. GPRS Only Mode

Unless otherwise connected with the GSM modem, control center will not be able to use SMS communication. But you control iTrac on your mobile phone via SMS.

Under this control center, iTrac only report to control center via GPRS. Also iTrac can report to person and requestor via SMS.

Control center can get history data via GPRS and E-Mail.

6.4. SMS and GPRS Mode

If control center connected with the internet and GSM modem, control center able to use GPRS and SMS communication both.

Under this control center, iTrac will report to control center via GPRS first if GPRS connection is established. If not it will report to control center via SMS.

Control center can get history data via GPRS, E-Mail.

7. Important Notice

1. Please follow the manual(1.3.1.3 iTrac Cable Connector) when installing the unit on vehicle. Make sure each wire is correctly installed to the appropriate part on the vehicle.
2. Make sure that the **vehicle's voltage is no less than 9V**
3. Make sure the connector on the I/O cable is tightly plugged in the unit
4. Make sure the **current flow from power (input) is no more than 200mA**
5. Make sure the **current of the I/Os (output) on vehicle do not exceed 250mA**
6. If there is no valid GPS position, the latitude and longitude in the GPS data should appear as 0000.0000,N,00000.0000,E
7. when USB cable connected, all GPS location will be appear as 0000.0000,N,00000.0000,E. Please **unplug USB cable to get valid GPS location.**
8. Disable &journeyalarm will only disable journey start and end alarm sent to user's cell phone number. Disabling the &journeyalarm will also disable the unit to log journey start and end alarm in its memory. Please note that all other events during journey will be sent and recorded.
9. If user do not want to receive any SMS messages from the unit, user should set the SMS server number to "+" only. For example, &SERVER,000001,Unit1,+,211.23.38.138,6060,+0830
10. GPRS will reconnect every five minutes if GPRS connection is broken. When GPRS reconnects to server, it will send a message to the server to let the server know that the unit is connected to it.
11. Make sure that when you tried to use HyperTerminal to communicate with the unit, you must tick the following 1. "Send the line ends with line feeds" and 2. Echo typed characters locally"