

GPS Tracker Communication Protocol

1. Summarize

This tracker connects to platform server with **TCP**. The way for connection is that device connects to the platform server forwardly. After connecting to the platform server, the tracker will pass back a enrolling message. The enrolling message contains the device's ID. If the device received the answer from the platform server, it will stop to sending enrolling message but send continuous feedback message. The continuous feedback message not contains the device ID. The platform server binds the device by connection. One connection represents a device ID. When the connection cuts off, the device will connect the platform server automatically and send out a device enrolling message. Beside, the device will send out one hand-shaking message intervals of time. The hand-shaking message contains Device ID. After receiving the handshaking answer message from the platform server, the device waits for sending the handshaking message in next period.

NOTE: After the V1.8 agreement, the equipment issued in 12-bit serial number of data packets into : 0 + 11-bit device number(Machine IMEI 11 bit), so that platforms do not need to bind the device depending on the connectivity, according to each packet in the device number to tie fixed equipment, platforms dealing with them will be simpler.

2. Message Instrument

2.1 Data Type definition

Data Type	Instruction
CHAR	Single ASCII code character
C_STRING	Contain ASCII character string. When fix digits, fill in Binary system of bank(0x20H)on right for lacking digit to fix a long time except for special instruction.
N_STRING	Contain the digit character string of 0.9. When fix digits, fill in ASCII code 0(0x30H) on left for lacking digit except for special instruction.
H_STRING	Contain the digit character string of O. F. When fix digits, fill in ASCII code 0(0x30H) on left for lacking digit except for special instruction.
HEX_STRING	Hexadecimal system character string. Such as 1, use “31” for indication. When fix digits, fill in ASCII code 0 (0x30H) on left for lacking digit except for special instruction.
BIN	Binary system data
BYTE	8 digits without symbol integer, 0..255

2.2 Message format

GPS Tracker exchanges the information with network gateway through data frames transmitting, using TCP protocol. Full data frames structure definition for GPRS is as following:

Head	Serial number / Time	Command	Message Body	Trail
1 byte	12 byte	4 byte	N byte (N≤1K)	1byte

Each Full data frame must contain: Head symbol, Serial Number/ Time, Command word, Message body, Trail symbol

2.3 Message field definition Y

2.3.1 Head/Trail symbol digit

Symbol digit figures the beginning and ending of the message frame. 0x28H (character “(”) as beginning symbol, and 0x29H (character “)”) as ending symbol.

2.3.2 Terminal ID

Length: 12 bytes, C_STRING character

Function: This field is used to bind device, each message contains a device number, platform, device ID through binding equipment. General Device ID format is"0" + " Machine IMEI 11 bit." Reference format as follows: "088990008090"

2.3.3 Command word

Length: 4 bytes, C_STRING character

Function : Define the type of operated message for data frame transmitting, and figures the function of data. The definition is as following,

2.3.4 Message body

Length: no fixed,≤1024 bytes, also can be blank.

Function: Confirm the server data message under corresponding command.

3. Command Message

3.1. Downlink Message (platform server sending)

3.1.1 Answer handshake signal message

Message Field	Message Value	Type	Length (Character)	Instruction
Beginning identifier	(	CHAR	1	
Device number		C_STRING	12	
Command word	AP01	C_STRING	4	
Message body	Message content	C_STRING	3	
Message content	HSO			
Ending identifier	)	CHAR	1	
For example:				
(088990008090 AP01 HSO)				
Down response handshake signal message, “088990008090” is tracker ID.				
Response	No need response			
Instruction:	This message is available to all device			

3.1.2 Device login response message

Message Field	Message Value	Type	Length (Character)	Instruction
Beginning identifier	(	CHAR	1	
		C_STRING	12	
Command word	AP05	C_STRING	4	
Message body	Message content	C_STRING	non	
Message content				
Ending identifier	)	CHAR	1	
For example				
(088990008090 AP05)				
“088990008090” is tracker ID.				
Instruction:	This message is available to all device			

3.1.3 Same time continues feedback configure

Message Field	Message Value	Type	Length (Character)	Instruction
Beginning identifier	(	CHAR	1	
Equipment		C_STRING	12	
Number				
Command word	AR00	C_STRING	4	
Message Body		C_STRING	8	
Message Content	<p>AR00XXXXYYZZ</p> <p>AR00: Fixed key words</p> <p>XXXX: Interval for each message of continues feedback. hex。Unit: Second, 4 characters in all, H_STRING. The max is 0xFFFF seconds。 When XXXX=0,the device stops continues feedback.</p> <p>YYZZ: The total time for feedback, 16 advance system. Unit: YY: Hour、 ZZ: Minute. 4 characters in all, H_STRING, The max is 0xFFFF, ie:255 hours 255 minutes. When YYZZ=0, according to the time intervals, continues feedback.</p> <p>When both XXXX and YYZZ are not 0 , it figure that feedback according to the time intervals, when it up to the total time, it automatically stop to feedback</p>			
Ending identifier	)	CHAR	1	
For example:				
(088990008090 AR0000 140024)				
Down fixed time to set continues feedback. Feedback GPS data every 20 (16*1 + 4) seconds and feedback 36 (16 * 2 + 4) minutes in all. “088990008090” is tracker				
Response	Device response BS08			
Sending mode	Short Message, GPRS			
Instruction	This message is available to economic device and navigation device. In the mode of SMS to continues feedback, if set time interval is less than the Min time interval (Set by the device manufacturer),it will continues feedback according to the Min time interval, otherwise continues feedback according to the set time. The data mode is the same as the SMS mode.			

3.1.4 Answer Alarm Message

Message Field	Message Value	Type	Length (Character)	Instruction
Beginning identifier	(	CHAR	1	

Equipment Number		C_STRING	12	
Command word	AS01	C_STRING	4	
Message body		C_STRING	1	
Message Content	AS01X X: The type of alarm for BO01X up alarm message.1character,16 advance system, ASCII character 0: Cut off vehicle oil 1: Happen accident 2: Vehicle rob (SOS help) 3: Vehicle anti-theft alarm 4: Vehicle low speed alarm 5: Vehicle over speed alarm 6.:Alarm out of Geo-fence 7: Movement alarm 8. Low battery			
Ending identifier	)	CHAR	1	
For example:				
(088990008090 AS012) Answer the up vehicle rob police, “088990008090” is tracker ID.				
Response	No need response			
Instruction:	This message is available to all device			

3.1.5 One time enquiry message

Message Field	Message Value	Type	Length (Character)	Instruction
Beginning identifier	(	CHAR	1	
Equipment Number		C_STRING	12	
Command word	AP00	C_STRING	4	
Message body	Message content	C_STRING	0	
Message body				
Ending identifier	)	CHAR	1	
For example:				
(088990008090 AP00) Closed the oil.“088990008090” is tracker ID.				
Response	Device response BP04			
Instruction:	This message is available to all device			

3.1.6 Setting vehicle high and low limit speed

Message Field	Message Value	Type	Length (Character)	Instruction
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Beginning identifier	(CHAR	1	
Equipment Number		C_STRING	12	
Command word	AP12	C_STRING	4	
Message Body	Message content	C_STRING		
Message Content	H050L030			
Ending identifier	)	CHAR	1	
For example:				
(088990008090 AP12 H050L030)				
Setting the up limit speed is 50km/h, low limit is 30km/h. When up limit is 000, it figures cancel alarm up limit, and when down limit is 000, it figures cancel alarm down limit. Less 3 digits of the speed, full 0 on left. Alarm refer to 3.2.4 . “088990008090” is tracker ID.				
Response	BP12			
Instruction:	This message is available to all device			

3.1.7 Circuit control signal

Message Field	Message Value	Type	Length (Character)	Instruction
Beginning identifier	(	CHAR	1	
Equipment Number		C_STRING	12	
Command word	AV00	C_STRING	4	
Message Body	Message content	C_STRING		
Message Content	“1”or“0”, “1”figures opening circuit,“0”figures closing circuit.			
Ending identifier	)	CHAR	1	
For example:				

(088990008090 AV000) Closed the circuit, “088990008090” is tracker ID.	
Response	BV00
Instruction:	This message is available to all device

3.1.810 Oil control single

Message Field	Message Value	Type	Length (Character)	Instruction
Beginning identifier	(	CHAR	1	
Equipment Number		C_STRING	12	
Command word	AV01	C_STRING	4	
Message body	Message content	C_STRING		
Message content	“1”or“0”,“1”figures opening oil, “0”figures closing oil。			
Ending identifier	)	CHAR	1	

For example:

(088990008090 AV010) Closed the oil. “088990008090” is tracker ID.	
Responds:	BV00
Instruction:	This message is available to all device

3.1.10 Control the restarted message of the device

Message Field	Message Value	Type	Length (Character)	Instruction
Beginning identifier	(	CHAR	1	
Equipment Number		C_STRING	12	
Command word	AT00	C_STRING	4	
Message body	Message Content	C_STRING		
Message content	no			
Ending identifier	)	CHAR	1	

For example

(088990008090 AT00) Reboot the device. “088990008090” is tracker ID.	
Response	BT00

Instruction:	This message is available to all device
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3.1.11 Set ACC open sending data intervals

Message Field	Message Value	Type	Length (Character)	Instruction
Beginning identifier	(	CHAR	1	
Equipment Number		C_STRING	12	
Command word	AR05	C_STRING	4	
Message body	Message content	C_STRING		
Message content	AR05XXXX AR05: Fixed keywords XXXX: The time for sending data intervals for the ACC Open, hex. Unit: Second			
Ending identifier	)	CHAR	1	
For example				
(088990008090 AR05 0014)				
It sends back intervals 20 seconds when the ACC is opening. "088990008090" is tracker ID.				
Response	BR05			
Instruction:	This message is available to all device			

3.1.12 Set ACC close sending data intervals

Message Field	Message Value	Type	Length (Character)	Instruction
Beginning identifier	(	CHAR	1	
Equipment Number		C_STRING	12	
Command word	AR06	C_STRING	4	
Message body	Message content	C_STRING		
Message content	AR06XXXX AR06: Fixed keywords XXXX: The time for sending data intervals for the ACC Open, Hex. Unit: Second			
Ending identifier	)	CHAR	1	
For example				

(088990008090AR06003C)	
It sends back intervals 20 seconds when the ACC is closing. "088990008090" is tracker ID.	
Response	BR06
Instruction:	This message is available to all device

3.1.13 To obtain the terminal location response message

Message Field	Message Value	Type	Length (Character)	Instruction
Beginning identifier	(	CHAR	1	
Equipment Number		C_STRING	12	
Command word	AR03	C_STRING	4	
Message body	Message content	C_STRING		
Message content	<p>Content of the message = location data length +location data Location data length : BYTE type, a byte, less than 140 Location data : BYTE type, length is less than 140, encoding for Unicode encoding, a character or the total number of two bytes, a maximum of 70 characters can be coded transmission.</p> <p style="text-align: center;">Note that is not a GB2312 encoding.</p>			
Ending identifier	)	CHAR	1	
For example				

The request message is

(013632782450BR03080525A2934.0133N10627.2544E000.0141830309.6200000000L200300C6)

Server response messages is

(081129141850AR03 0x72 0x6D, 0xF1, 0x00, 0x41, 0x00, 0x38, 0x00, 0x37, 0x00, 0x4A, 0x00, 0x35, 0x00, 0x38, 0x4F, 0x4D, 0x7F, 0x6E, 0x4E, 0x3A, 0x00, 0x3A, 0x5E, 0x7F, 0x4E, 0x1C, 0x77, 0x01, 0x6D, 0xF1, 0x57, 0x33, 0x5E, 0x02, 0x5E, 0x02, 0x53, 0x3A, 0x6D, 0xF1, 0x57, 0x33, 0x6C, 0x7D, 0x8F, 0x66, 0x7A, 0xD9, 0x6B, 0x63, 0x53, 0x57, 0x00, 0x32, 0x00, 0x2E, 0x00, 0x35, 0x51, 0x6C, 0x91, 0xCC, 0x5D, 0xE6, 0x53, 0xF3, 0x00, 0x3B, 0x8D, 0x5B, 0x68, 0x3C, 0x79, 0xD1, 0x62, 0x80, 0x56, 0xED, 0x96, 0x44, 0x8F, 0xD1, 0x00, 0x2C, 0x00, 0x30, 0x00, 0x38, 0x5E, 0x74, 0x00, 0x31, 0x00, 0x31, 0x67, 0x08, 0x00, 0x32, 0x00, 0x39, 0x65, 0xE5, 0x00, 0x31, 0x00, 0x34, 0x65, 0xF6, 0x00, 0x31, 0x00, 0x38, 0x52, 0x06)

Binary appear as:

28 30 38 31 31 32 39 31 34 31 38 35 30 41 52 30 33 72 6D F1 00 41 00 38 00 37 00 4A 00 35 00 38 4F 4D 7F 6E 4E 3A 00 3A 5E 7F 4E 1C 77 01 6D F1 57 33 5E 02 5E 02 53 3A 6D F1 57 33 6C 7D 8F 66 7A D9 6B 63 53 57 00 32 00 2E 00 35 51 6C 91 CC 5D E6 53 F3 00 3B 8D 5B 68 3C 79 D1 62 80 56 ED 96 44 8F D1 00 2C 00 30 00 38 5E 74 00 31 00 31 67 08 00 32 00 39 65 E5 00 31 00 34 65 F6 00 31 00 38 52 06 29

the sent contents is "SHEN A87J58 location: Shenzhen, Guangdong Province, Shenzhen city bus station south of about 2.5 km; SEG Science and Technology Park in the vicinity, at 2:18 p.m. on November 29, 2008." If the request by the dimension is0, can return to the "Terminal does not target.".

Response	none
Instruction:	This message is available to all device

3.1.14 Monitor Command

Message Field	Field value	Type	Length (byte)	Instruction
Beginning identifier	(	CHAR	1	
Equipment Number		C_STRING	12	
Command word	AP15	C_STRING	4	
Message body	Message Content	C_STRING		

Message content	AP15 + NNNN NNNN: the phone number of the equipment dials, length is not fixed.			
Ending identifier	)	CHAR	1	
Example: : (088990008090 AP15 13632782450) After the terminal response, it will call “13632782450”.				
Response	BS20			
Instruction:	This message is available to all device			

3.1.15 Set the terminal IP address and port

Message Field	Field value	Type	Length (byte)	Instruction
Beginning identifier	(	CHAR	1	
Equipment Number		C_STRING	12	
Command word	AP03	C_STRING	4	
Message body	Message Content	C_STRING		
Message content	AAABBBCCDDDEEEEE AAA, BBB, CCC, DDD is the IP address, EEEEE is the port.			
Ending identifier	)	CHAR	1	
Example: : (088990008090 AP03 22101807911000123) set the terminal IP address 221.18.79,110 port is 123				
Response	BS20			
Instruction:	This message is available to all device			

3.1.16 Set APN message

Message Field	Field value	Type	Length (byte)	Instruction
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Beginning identifier	(CHAR	1	
Equipment Number		C_STRING	12	
Command word	AP04	C_STRING	4	
Message body	Message Content	C_STRING		
Message content	Length is not fixed, based on user input required			
Ending identifier	)	CHAR	1	
Example: :				
(088990008090 AP04 CMNET)				
set the terminal APN to CMNET				
Response	BP03			
Instruction:	This message is available to all device			

3.1.17 Reading Terminal version message (SIM CCID)

Message Field	Field value	Type	Length (byte)	Instruction
Beginning identifier	(	CHAR	1	
Equipment Number		C_STRING	12	
Command word	AP07	C_STRING	4	
Message body	Message Content	C_STRING		
Message content				
Ending identifier	)	CHAR	1	
Example: :				

(088990008090AP07)	
Response	BP01
Instruction:	This message is available to all device

3.1.18 Vibration alarm setting AP30

Message Field	Field value	Type	Length (byte)	Instruction
Beginning identifier	(	CHAR	1	
Equipment Number		C_STRING	12	
Command word	AP30	C_STRING	4	
Message body	Message Content	C_STRING	3	
Message content	ABC A: alarm mode. 0, not the police; 1, the phone; 2, text messages; 3, phone + text messages, default 1 B: alarm level. 1-5, the 1-5 level, the default 3. C: alarm cooling time, cooling time does not repeat the alarm. Unit: min. Default 5			
Ending identifier	)	CHAR	1	
Example: :				
(027028783173AP30135)				
Response	BS40			
Instruction:	This message is available to all device			

3.1.19 Cancel of all alarm messages

Message Field	Field value	Type	Length (byte)	Instruction
Beginning identifier	(	CHAR	1	
Equipment Number		C_STRING	12	
Command word	AV02	C_STRING	4	
Message body	Message Content	C_STRING		
Message content				
Ending identifier	)	CHAR	1	
Example: :				
(088990008090AV02)				
Response	BS21			
Instruction:	This message is available to all device			

3.1.20 Alert on/off

Message Field	Message Value	Type	Length (Character)	Instruction
Beginning identifier	(	CHAR	1	
Equipment Number		C_STRING	12	
Command word	AV03	C_STRING	4	
Message body	Message content	C_STRING		
Message content	"1"or"0", "1"figures Alert on, "0"figures Alert off.			
Ending identifier	)	CHAR	1	
For example:				
(088990008090AV030)				
Responds:	BV03			

Message Field	Field value	Type	length (byte)	Instruction
Beginning identifier	(	CHAR	1	
Device number		C_STRING	12	
Command word	AP17	C_STRING	4	
Message body	Message content	C_STRING		
Message content	0xFF			
Ending identifier	)	CHAR	1	
Example:				
(088990008090 AP17 0xFF) The platform to terminal request cancel all of group number				
Response:	BP17			
Instruction:	This message is available to a part of device.			

3.1.23 Request to upload Management number

Message Field	Field value	Type	Length (byte)	Instruction
Beginning identifier	(	CHAR	1	
Device number		C_STRING	12	
Command word	AP18	C_STRING	4	
Message body	Message content	C_STRING		
Message content	0xFF			
Ending identifier	)	CHAR	1	
Example:				
(088990008090 AP18 0xFF) The platform to terminal request upload all of group number.				
Response:	BP18			
Instruction:	This message is available to a part of device.			

3.2.Uplink message (The device Sending)

3.2.1 Handshake signal Message+ battery voltage

Message Field	Field value	Type	Length (byte)	Instruction
Beginning identifier	(	CHAR	1	
Equipment Number		C_STRING	12	
Command word	BP00	C_STRING	4	
IMEI	IMEI	C_STRING	15	
Message body		C_STRING	6	
Message content	353388990008090HSO19F			
Ending identifier	)	CHAR	1	
Example: :				
<p>(027023330434BP00353327023330434HSO19F) Up data handshaking message, "088990008090" is tracker ID.</p> <p>The battery voltage is placed in the back of the HSO 3, the 16 - band representation, the decimal divided by 100, unit V</p> <p>Format. Value from voltage 0 to 960, from 0V to 24V. Such as Hex 5AE is $5 \times 16 \times 16 + 10 \times 16 + 14 = 1454$ E (10mV) = 14.54V.</p> <p>Format. Value from voltage 0 to 960, from 0V to 24V. Such as Hex 5AE is $5 \times 16 \times 16 + 10 \times 16 + 14 = 1454$ E (10mV) = 14.54V</p> <p>420 /100</p> <p>4.15 19F V</p>				
Response	Center service response AP01			
Instruction:	This message is available to all device			

3.2.2 Login message

Message Field	Message Value	Type	Length (Character)	Instruction
Beginning identifier	(	CHAR	1	

Equipment Number		C_STRING	12	
Command word	BP05	C_STRING	4	
Terminal ID	Terminal ID	C_STRING	15	
Message body		C_STRING	60	
Message content	15 terminal IMEI + GPS data			
Ending identifier	)	CHAR	1	
Example:				
(088990008090 BP05 353388990008090080524A2232.9806N11404.9355E000.1101241323.8700000000L000450AC)				
The GPS location data, which is no longer valid, is no longer valid for the upload command when no precise location is located.				
Response:	Centre service response AP05			
Instruction:	This message is available to all device			

Server synchronization time

Message Field	Message Value	Type	Length (Character)	Instruction
Beginning identifier	(	CHAR	1	
Equipment Number		C_STRING	12	
Command word	AP06	C_STRING	4	
Terminal ID	Terminal ID	C_STRING	15	
Message body		C_STRING	60	
Message content	15 terminal IMEI +Month day hour 20150810133054 Standard 0 time zone			
Ending identifier	)	CHAR	1	

Example:	
(027028183507AP0620150810133054)	
Response:	(027028183507BP0620150810133054)
Instruction:	This message is available to all device

3.2.3 Response to set up passing back the isochronal and continuous message.

Message Field	Message Value	Type	Length (Character)	Instruction
Beginning identifier	(	CHAR	1	
Equipment Number		C_STRING	12	
Command word	BS08	C_STRING	4	
Message Body		C_STRING	8	
Message Content	BS08XXXXYYZZ BS08: Fix key words XXXX: Interval for each message of continues feedback。 Unit: second, 4 characters in all, H_STRING, to the max is 65535 seconds。 When XXXX=0, The device stops continues feedback YYZZ: the total time of feedback, Unit: YY: Hour、 ZZ: Minute。 Total of 4 bytes, 16 advance system, to the max is FFFF, means 255 hours and 255 minutes。 When YYZZ = 0, according to the time intervals continues feedback. When both XXXX and YYZZ are not 0, it figure that feedback according to the time intervals when it up to the total time it automatically stop to feedback.			
Ending identifier	)	CHAR	1	
Example:				
(088990008090BS0800050014)				
Return GPS data every 5 seconds, total of 20 minutes。				
Response:	No need to response			

Instruction	This message applies to economically terminals and navigational terminals。 Ceaselessly return, after the mode of short message. If the interval of set time is less than the interval of minimum time (set by the terminal manufacturers), then the time of ceaselessly return according to the interval of minimum time , if not, then according to the interval of the set time。 Data model and short message model are the same.
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3.2.4 Alarm message

Message Field	Message Value	Type	Length (Character)	Instruction
Beginning identifier	(	CHAR	1	
Equipment Number		C_STRING	12	
Command word	BO01	C_STRING	4	
Message Body		C_STRING	61	
Message Content	BO01X+GPS data BO01: Fixed keywords X: Specific alarm information code, 1 byte, Hexadecimal。 Alarm information: 0: Vehicle power off 1: Accident 2: Vehicle robbery (SOS help) 3: Vehicle anti-theft and alarming 4: Lowerspeed Alert 5: Overspeed Alert 6:Alarm when out of Geo-fence 7: vibration alarm 8: low power alarm			
Ending identifier	)	CHAR	1	
Example:				

<p>(088990008090BO012061830A2934.0133 N10627.2544E040.0080331309.6200000000L000770AD)</p> <p>Alarm message and vehicle robbery。 GPS data acquisition time is March 24,2008, Universal time is 6:18:30。“A” shows the data available, 29 degrees,34.0133 minutes north latitude, 106 degrees 27.2544 minutes east longitude, speed is 040.0 km/h, the angle is 309.62 degrees, from due north。”L” means Total mileage, unit is meter, mileage statistic(not used)。</p>	
Response:	Centre response AS01
Instruction	This message applies to all terminals。 Send the information up to 10 times every intervals is 30 seconds , No longer to send the information after receive the platform response。

3.2.5 Answer to Message of calling the roll.

Message Field	Message Value	Type	Length (Character)	Instruction
Beginning identifier	(	CHAR	1	
Equipment Number		C_STRING	12	
Command word	BP04	C_STRING	4	
Message Body		C_STRING	Random length	
Message Content	BP04+GPS data BP04: fix Command Word。			
Ending identifier	)	CHAR	1	
Example				

(088990008090 BP04080525A2934.0133N 10627.2544E000.0141830309.6200000000L00000023)	
Up terminal news (center response by one roll call), GPS data acquisition time is May25,2008, Universal time is 14:18:30, "A" shows the data available, 29 degrees,34.0133 minutes north latitude, 106 degrees 27.2544 minutes east longitude, speed is 0km/h, the angle is 309.62 degrees, from due north.。	
Response	No
Instruction:	This message is available to all device

3.2.6 Response to upload Management number

Message Field	Field value	Type	Length (byte)	Instruction
Beginning identifier	(	CHAR	1	
Device number		C_STRING	12	
Command word	AP19	C_STRING	4	
Message body		C_STRING	fixed	
Message content	Y Y: 2 successful,3 Failure, 1 byte。			
Ending identifier	)	CHAR	1	
Example:				
(013632782450 AP192) 0x02 Said upload Management number is success				
Reponse:	No need response			
Instruction:	This message is available to a part of device,			

3.2.7 Isochronous and continues feedback message

Message Field	Message Value	Type	Length (Character)	Instruction
Beginning identifier	(	CHAR	1	

Equipment Number		C_STRING	12	
Command word	BR00	C_STRING	4	
Message body		C_STRING		
Message body	BR00+GPS data			
Message content	)	CHAR	1	
Ending identifier				
Example				
(088990008090 BR00 080612A2232.9828N11404.9297E000.0022828000.0000000000L000230AA)				
Response	No			
Instruction	This message applies to economically terminals and navigational terminals。Continuously return total time and distance , or receive the message of stop continuously return message from the center., then send the ending message to center。			

LBS

Message Field	Message Value	Type	Length (Character)	Instruction
Beginning identifier	(	CHAR	1	
Equipment Number		C_STRING	12	
Command word	BZ00	C_STRING	4	

Message body		C_STRING	Indefinite length	Uncertain base station number reported
Message body	BZ00, MNC, MCC, LAC, CELLID,			
Message content	)	CHAR	1	
Ending identifier				
Example				
(088990008090BZ00,460,000,9763,4190,9763,4251,9784,4241,9763,3623,9365,3822,00000001)				
Response	No			
Instruction	This message applies to economically terminals and navigational terminals . Continuously return total time and distance , or receive the message of stop continuously return message from the center., then send the ending message to center.			

Description: no GPS signal to the base station data automatically to report

3.2.8 Response to set up vehicle max and min speed

Message Field	Message Value	Type	Length (Character)	Instruction
Beginning identifier	(	CHAR	1	
Equipment Number		C_STRING	12	
Command word	BP12	C_STRING	4	
Message body	Message Content	C_STRING		

Message body	H0501L030			
Message content	)	CHAR	1	
Ending identifier				
Example:				
(088990008090BP12 H0501L030)				
Instruction :	This message is available to all device			

3.2.9 Response to circuit Control

Message Field	Message Value	Type	Length (Character)	Instruction
Beginning identifier	(	CHAR	1	
Equipment Number		C_STRING	12	
Command Word	BV00	C_STRING	4	
Message Body	Message Content	C_STRING		
Message Content	“1”or“0”,“1” means circuit has been opened, “0” means circuit has been closed			
Close Identifier	)	CHAR	1	
Example:				
Response:	No			
Instruction:	This message is available to all device			

3.2.10 Response to oil Control

Message Field	Message Value	Type	Length (Character)	Instruction
Beginning identifier	(	CHAR	1	
Equipment Number		C_STRING	12	

Command word	BV01	C_STRING	4	
Device ID	Message content	C_STRING		
Message body	“1”or“0”,“1”means oil has been opened , “0”means oil has been closed.			
Message content	)	CHAR	1	
Ending identifier				
Example:				
Response:	No			
Instruction:	This message is available to all device			

3.2.11 response vibration alarm settings

Message Field	Message Value	Type	Length (Character)	Instruction
Beginning identifier	(	CHAR	1	
Equipment Number		C_STRING	12	
Command word	BS40	C_STRING	4	
Message Body	Message Content	C_STRING		
Message Content				
Ending identifier	)	CHAR	1	
Example:				
(013632782450 BS40)				
Response:	No			

Instruction:	This message is available to all device
--------------	---

3.2.12 Answer to the restarted message of the device

Message Field	Message Value	Type	Length (Character)	Instruction
Beginning identifier	(	CHAR	1	
Equipment Number		C_STRING	12	
Command word	BT00	C_STRING	4	
Message Body	Message Content	C_STRING		
Message Content	no			
Ending identifier	)	CHAR	1	
Example:				
Response:	No			
Instruction:	This message is available to all device			

3.2.13 terminal response from control

Message Field	Message Value	Type	Length (Character)	Instruction
Beginning identifier	(	CHAR	1	
Equipment Number		C_STRING	12	
Command word	BV03	C_STRING	4	

Message Body	Message Content	C_STRING		
Message Content	"1" or "0", "1" said disarm, "0" has been fortified.			
Ending identifier	)	CHAR	1	
Example:				
(886600000632BV030)				
Response:	No			
Instruction:	This message is available to all device			

3.2.14 Obtain the terminal location message

Message Field	Message Value	Type	Length (Character)	Instruction
Beginning identifier	(	CHAR	1	
Equipment Number		C_STRING	12	
Command word	BR03	C_STRING	4	
Message Body	Message Content	C_STRING		
Message Content	BR03 + GPS data			
Ending identifier	)	CHAR	1	
Example:				
(013632782450BR03080525A2934.0133N10627.2544E000.0141830309.6200000000L200300C6)				
Response:	AR03			
Instruction:	This message is available to all device			

Message Field	Message Value	Type	Length (Character)	Instruction
Beginning identifier	(	CHAR	1	
Equipment Number		C_STRING	12	
Command word	BZ00	C_STRING	4	
Message body		C_STRING	Indefinite length	Uncertain base station number reported
Message body	BZ00, MNC, MCC, LAC, CELLID,			
Message content	)	CHAR	1	
Ending identifier				
Example				
(088990008090BZ00,460,000,9763,4190,9763,4251,9784,4241,9763,3623,9365,3822,00000001)				
Response	No			
Instruction	This message applies to economically terminals and navigational terminals. Continuously return total time and distance, or receive the message of stop continuously return message from the center., then send the ending message to center.			

Description: no GPS signal to the base station data automatically to report

3.2.15 Response to monitoring commands

Message Field	Message Value	Type	Length (Character)	Instruction
---------------	---------------	------	--------------------	-------------

Beginning identifier	(	CHAR	1	
Equipment Number		C_STRING	12	
Command word	BS20	C_STRING	4	
Message Body	Message Content	C_STRING		
Message Content				
Ending identifier	)	CHAR	1	
Example:				
(013632782450BS20)				
Response:	No			
Instruction:	This message is available to all device			

3.2.16 Answer to Setting up the terminal IP address and port

Message Field	Message Value	Type	Length (Character)	Instruction
Beginning identifier	(	CHAR	1	
Equipment Number		C_STRING	12	
Command word	BP02	C_STRING	4	
Message Body	Message Content	C_STRING		
Message Content				
Ending identifier	)	CHAR	1	
Example:				

(013632782450BP02)	
Response:	No
Instruction:	This message is available to all device

3.2.17 Answer to Setting APN message

Message Field	Message Value	Type	Length (Character)	Instruction
Beginning identifier	(	CHAR	1	
Equipment Number		C_STRING	12	
Command word	BP03	C_STRING	4	
Message Body	Message Content	C_STRING		

Message Content				
Ending identifier	)	CHAR	1	
Example:				
(013632782450BP03)				
Response:	No			
Instruction:	This message is available to all device			

3.2.18 Response to reading the terminal version message+CCID

Message Field	Message Value	Type	Length (Character)	Instruction
Beginning identifier	(	CHAR	1	
Equipment Number		C_STRING	12	

Command word	BP01	C_STRING	4	
Message Body	Message Content	C_STRING		
Message Content	Is not fixed-length string, the platform only need to shown the string directly			
Ending identifier	)	CHAR	1	
Example:				
(488990008090BP01 KSPH23_09A_WGM_V10_0522, CCID:89860063191130212997)				
Note: this protocol is extended. Is modified to increase the corresponding SIM number of CCID card				
Response:	No			
Instruction:	This message is available to all device			

3.2.19 Response to canceling all alarm messages

Message Field	Message Value	Type	Length (Character)	Instruction
Beginning identifier	(	CHAR	1	
Equipment Number		C_STRING	12	
Command word	BS21	C_STRING	4	
Message Body	Message Content	C_STRING		
Message Content				
Ending identifier	)	CHAR	1	
Example:				
(013632782450 BS21)				
Response:	No			

Instruction:	This message is available to all device
is complete, it will return to the original platform, all of the setting parameters will not change.	
Response:	No
Instruction:	This message is available to all device

3.2.20 Compensation Data Return messages

Message Field	Message Value	Type	Length (Character)	Instruction
Beginning identifier	(	CHAR	1	
Equipment Number		C_STRING	12	
Command word	BR01	C_STRING	4	
Message Body	Message Content	C_STRING		
Message Content	BR01 + GPS data			
Ending identifier	)	CHAR	1	
Example:				
(013632782450 BR01 1080612A2232.9828N11404.9297E000.0022828000.0000000000L000230ED)				
Response:	Do not need respond			
Instruction:	This information is used to compensate breakpoints			

Supplements **LBS**

Message Field	Message Value	Type	Length (Character)	Instruction
Beginning identifier	(	CHAR	1	
Equipment Number		C_STRING	12	

Command word	BZ01	C_STRING	4	
Message body		C_STRING	Indefinite length	Uncertain base station number reported
Message body	BZ01, MNC, MCC, LAC, CELLID,			
Message content	)	CHAR	1	
Ending identifier				
Example				
(088990008090BZ00,460,000,9763,4190,9763,4251,9784,4241,9763,3623,9365,3822,0000001)				
Response	No			
Instruction	This message applies to economically terminals and navigational terminals. Continuously return total time and distance, or receive the message of stop continuously return message from the center., then send the ending message to center.			

Description: no GPS signal to the base station data automatically to report

3.2.21 Answer to downloading Management numbers

Message Field	Message Value	Type	Length (Character)	Instruction
Beginning identifier	(	CHAR	1	
Equipment Number		C_STRING	12	
Command word	BP16	C_STRING	4	

Message Body		C_STRING	FIX	
Message Content	Y Y: 2:Succeed ,3: Fail, 1:Type。			
Ending identifier	)	CHAR	1	
Example:				
(013632782450 BP162) That means download Management number successfully.				
Response:	No need response			
Instruction:	This message is available to a part of device.			

3.2.21 Answer to canceling Management numbers

Message Field	Message Value	Type	Length (Character)	Instruction
Beginning identifier	(	CHAR	1	
Equipment Number		C_STRING	12	
Command word	BP17	C_STRING	4	
Message Body		C_STRING	FIX	
Message Content	Y Y: 2Succeed,3:Fail, 1Byte。			
Ending identifier	)	CHAR	1	
Example:				
(013632782450 BP172) That means canceling Management number successfully.				
Response:	No need response			
Instruction:	This message is available to a part of device			

3.2.23 Upload Management numbers

Message Field	Message Value	Type	Length (Character)	Instruction
Beginning identifier	(	CHAR	1	
Equipment Number		C_STRING	12	
Command word	BP18	C_STRING	4	
Message Body		C_STRING	Indefinite length	
Message Content	<p>X + Telephone number content 《The most 30 Management number》 X: Include serial number (Then have X Management number)</p> <p>Telephone number content format: (one Management number total have 30 byte)</p> <pre>{ N + nnnnnnnn + B + bbbbbbbbbbbbbbbbbbbb N: Name length, 1byte. nnnnnnnn: name content, 8 byte 《BG2312》 or standard ASCII code, after inadequate filling 0x00. B: number length, 1byte. bbbbbbbbbbbbbbbbbbbb: group, 20 byte, after inadequate filling 0x00. }</pre>			
Ending identifier	)	CHAR	1	
<p>Example:</p> <pre>(088990008090BP18 0x02 0x06 0x46 0x6F 0x72 0x65 0x73 0x74 0x00 0x00 0x0B 0x31 0x33 0x31 0x36 0x34 0x37 0x30 0x39 0x36 0x35 0x37 0x00 0x00 0x00 0x00 0x00 0x00 0x00 0x00 0x00 0x04 0xBA 0xE8 0xD4 0xB6 0x00 0x00 0x00 0x00 0x1C 0x30 0x37 0x35 0x35 0x38 0x33 0x37 0x36 0x36 0x32 0x33 0x30 0x00 0x00 0x00 0x00 0x00 0x00 0x00 0x00)</pre> <p>The terminal to the platform download two Management number.:</p> <p>First: Six byte of the name (Forest), Eleven byte of number (13164709657)。</p> <p>Second : four byte of the name (HONGYUAN), Twelve byte of number (075583766230)。</p>				
Response:	AP19			
Instruction:	This message is available to a part of device,			

3.2.24 Alarm for data offset and messages return

Message Field	Message Value	Type	Length (Character)	Instruction
Beginning identifier	(	CHAR	1	
Equipment Number		C_STRING	12	
Command word	BO02	C_STRING	4	
Message Body		C_STRING	61	
Message Content	BO02X+GPS Date BO02: Fix key word X: Specific alarm information code, 1 byte, 16 advance system。			
	Alarm message: 0: Cut of vehicle oil 1: vehicle anti-theft alarm 2: Vehicle rob (SOShelp) 3: Happen accident 4: Vehicle low speed alarm 5: Vehicle over speed alarm 6: Vehicle out of Geo-fence 7 : vibration alarm 8: battery low			
Ending identifier	)	CHAR	1	
Example: (013632782450 BO02 2080524A2934.0133 N10627.2544E040.0061830309.6200000000L000770EF) Up alarm message, vehicle robbery。GPS data acquisition time is march 24 2008, Universal time is 6:18:30。“A” shows Data effectively, 29 degree 34.0133 minutes north latitude, 106 degree 27.2544minutes east longitude , Speed is 040.0 km/h, The angle is 309.62degree from due north。“L” means total mileage, Unit is meter, Mileage statistic.				
Response:	No need response			
Instruction:	This message is available to breakpoint offset.			
Content	Y: 2Mean successful ,3 Mean failure, 1 byte。			

Ending identifier	)	CHAR	1	
Example:				
(013632782450 BP242) That means closing timing feedback oil message successfully.				
Response:	No need response			
Instruction:	This message is available to a part of device, Mileage of this agreement is not reported			

ppendix

4.1. The format definition of GPS location message

Message Field	Message Value	Type	Length (Byte)	Instruction
Time	YYMMDD	N_STRING	6	Two bytes for each year/month/day
The availability of GPS data		CHAR	1	“A” or “V”. “A” means the availability of GPS data, ”V” means the invalidation of GPS data.
Latitude		N_STRING	9	The unit is degree for he front two bytes , from 0~90; the unit is cent for later seven bytes.
Latitude indicator	“N” or “S”	CHAR	1	“N” means north latitude , ”S” means south latitude
Longitude		N_STRING	10	The unit is degree for he front three bytes, from 0~180; the unit is cent for later seven bytes
Longitude indicator	“E” or “W”	CHAR	1	“E” means east longitude , ”W” means west longitude
Speed		N_STRING	5	The unit is km/h
Time	HHMMSS	N_STRING	6	Two bytes of the year/month/day
Orientation		N_STRING	6	

IO State	<p>1:Main power, '0' means on power, '1' means off power.</p> <p>2:ACC,'0'ACC close, '1'ACCopen.</p> <p>3: blender,'0' Did not.start, '1' Just turning, '2'reverse turning.</p> <p>4:Empty/heavy vehicles,'0' Did not.start, '1'Empty, '2'Heavy.</p> <p>5:Front door,'0'Did not start, '1'open, '2 close.</p> <p>6: off the oil state, '1' '0' recovery oil</p> <p>7: arm / disarm state, '1' '0' from the 8 fortification: there is no vibration state, '1' '0' without vibration, shock</p>	N_ST RING	8	The 8 bits of IO
Milepost		CHA R	1	“L” mean Mileage
Mile data	The total mileage. The max is 0xFFFFFFFF	H_ST RING	8	Mile data, Unit: Meter
Instruction:	Mileage of this agreement is not reported			

(044027395704BQ81,ALARM,2,93,151101A2238.5295N11349.4556E0.31412154491.110,000000) ;

Idling alarm

(044027395704BQ81,ALARM,3,4076,151101A2238.5301N11349.4562E0.4071240410.0000,00000000) ;

Fast acceleration alarm

(044027395704BQ81,ALARM,4,926,151101A2238.5305N11349.4562E0.3881240400.0000,00000000) ; Quick slowdown alarm

(044027395704BQ81,ALARM,5,122,151101A2238.5390N11349.4813E0.1291204380.0000,00000000) ; High temperature alarm

response: No

Information text

Message type	ALARM			
Message content	,	CHAR	1	Separator
	alert_event_type	CHAR	2	9.Crash alarm 10.Low voltage alarm 11.Over speed alarm 12.Over time alarm for keep starting on park 13.Fast acceleration alarm 14.Fast slowdown alarm 15.Cooler lique high temperature alarm
	,	CHAR	1	Separator

	value	WORD	2	<p>Based on the value of alert_event_type</p> <p>0:value of low voltage (long integer)</p> <p>1: Value of over speed (integer)</p> <p>2: 0</p> <p>3: Alarm value of Fast acceleration</p> <p>4: alarm value of fast slowdown</p> <p>5: High temperature alarm value of cooler lique</p> <p>9:</p>
	,	CHAR	1	Separator
Location message, Pls reference to attached A				
	,	CHAR	1	
Status of teminal, pls reference to attached B				

5.2、BQ85 Routing data

BQ85 ,0,0 Route starting

Message field	Field value	type	length (byte)	Instruction
Starting flag	(	CHAR	1	
Device No.		C_STRING	12	
Command word	BQ85	C_STRING	4	
Message body	Message content	C_STRING		
Message content	<p>BQ85,0,0,Number of fault code,Fault code list,starting time,STATUS</p> <p>BQ85, 0, 0 (Carson OBD Ruting starting) content:</p> <p>9,264,291,16961,12852,16947,12595,12337,12339,14646,151102064225,00000000</p>			

	<p>Note: Number of fault ,9,</p> <p>Fault code list (comma separator) 264,291,16961,12852,16947,12595,12337,12339,14646,</p> <p>Start time: 151102064225,</p> <p>Status of terminal(8bytes, reference to attached B)</p>		
End flag	)	CHAR	1
eg:			
(044027395704BQ85,0,0,9,264,291,16961,12852,16947,12595,12337,12339,14646,151102064225,00000000)			
response :	AQ81 (044027395704AQ81,0)		
Note:	Uploading once the routing starting		

Message content

Reporting field	Field value	Type	length (byte)	instruction
	obd_type	N_STRING	1	Is OBD's manufacturer = 0 mean Manufacturer 0 = 1 mean Manufacturer 1
	,	CHAR	1	separator
	route_index	N_STRING	1	0 – mean route starting
	,	CHAR	1	Separator
	param_buf	STRING	Indefinite length	Set corresponding value for param_index (based on OBD manufacturer to separate the configuration, see the following instruction)
	,	CHAR	1	separator
	Location	STRING	Indefinite	Pls reference to

	message		length	attached A
	,	CHAR	1	separator
	Status of terminal	N_STRING	10	Pls reference to attached B
	)	BYTE	1	Content end flag

Message content instruction for Manufacturer 0

param_index	Index value	Each corresponding parameter data type and format is sepearted by comma
message content	=0 mean route start	BYTE,WORD,WORD,WORD... (numbers, fault code, ...)
	Instruction:	The platform meet the same route should be filter and no need to show the same route

BQ85 ,0,1 route end

Message field	Field value	type	length (byte)	instruction
Starting flag	(	CHAR	1	
Device No.		C_STRING	12	
Command word	BQ85	C_STRING	4	
Message body	Message content	C_STRING		
Message content	<p>BQ85,0,1,starting time,latitude,longitude,mileage,fuel,numbers of over speed,route time,driving time,times of fast acceleration,times of fast slowdown,times of over time for idling,maximum speed,maximum rotate speed,highest water temperature,end time,STATUS</p> <p>151101091304,2238.5294N11349.4494E,1561,5267,0,172,157,0,0,0,36,16320,90,151101091304,00000000)</p> <p>explain:</p> <p>starting time, 151101091304,</p> <p>latitude longitude, 2238.5294N11349.4494E,</p> <p>mileage, 1561,</p> <p>fuel, 5267,</p> <p>times of over speed, 0,</p> <p>route time, 172,</p>			

	driving time, 157, times of fast acceleration, 0, times of fast slowdown, 0, times of overtime for idling, 0, maximum speed, 36, maximum rotate speed, 16320, highest water temperature, 90, end time, 151101091304, STATUS of terminal 10010000		
End flag	)	CHAR	1
eg:			
(027024238925BQ85,0,1,151101091304,2238.5294N11349.4494E,1561,5267,0,172,157,0,0,0,36,16320,90,151101091304,00000000)			
response :	AQ81 (044027395704AQ81,1)		
instruction:	Uploading once the routing end		

Message content

Text field	Field value	type	length (byte)	instruction
	obd_type	N_STRING	1	Is OBD's manufacturer = 0 mean manufacturer0 = 1 mean manufacturer1
	,	CHAR	1	separator
	route_index	N_STRING	1	1 – mean route end
	,	CHAR	1	separator
	param_buf	STRING	Indefinite length	Set corresponding value for param_index (based on OBD manufacturer to separate the

				configuration, see the following instruction)
	,	CHAR	1	separator
	Location message	STRING	Indefinite length	Pls reference to attached A
	,	CHAR	1	separator
	Status of terminal	N_STRING	10	Pls reference to attached B
	)	BYTE	1	Content end flag

Detailed explain of message content for manufacturer 0

	Index value	Each corresponding parameter data type and format is sepearted by comma
param_index message content	=1 mean route end	<p>N_STRING,N_STRING,N_STRING,DWORD,DWORD,WORD, DWORD,DWORD,DWORD(route start time、 route start information of longitude and latitude (example: 2233.1303N11356.1966E) 、 route mileage, fuel,times of overspeed, route total time、 route time of non-idiling,times of fast acceleration, times of fast slowdown)</p> <p>Route start time format: YYYYMMDDHHNNSS (year-month-date-hour-minute-second)</p> <p>Route start longitude foramt: unit d p, same as ITV's GPS information</p> <p>Route start latitude format: unit d p, same as ITV's GPS information</p> <p>20131209214200 route start time</p> <p>2233.12498N11356.19245E route start coordinates</p> <p>1880 route mileage</p> <p>429 route fuel</p> <p>0 times of overspeed</p> <p>486 route total time</p> <p>0 route time for non-idiling</p> <p>0 times of fast acceleration</p> <p>0 times of fast slowdown</p>

		151101091304 end time 10010000 status of terminal
	instruction:	The platform meet the same route should be filtered and no need to show the same route

5.3、BQ86 OBD realtime data

Message field	Field value	type	length (byte)	instruction
Start flag	(	CHAR	1	
Device No.		C_STRING	12	
Command word	BQ86	C_STRING	4	
Message body	Message content	C_STRING		
Message content	0,05830b5e0c95630d630f05111f0e4e074e630163145b63428c54,000007V0000.0000N00000.0000E000.000140399,01000001 explain: manufacturer,indefinite length data, location message, status message indefinite length data explain: 05 = water temperature; 83 = value of water temperature; 0B = intake pressure, 5e=pressure value; 0C = rotate speed, 9563=value of rotate speed, data sheet pls reference to attached C			
End flag	)	CHAR	1	
eg: (device No. BQ86,0,PID-VAL PID-VAL ...,location message,status message)				
(027024238925BQ86,0,05830b5e0c95630d630f05111f0e4e074e630163145b63428c54,00007V0000.0000N00000.0000E000.000140399,01000001)				
response:				

Message content

Text field	Field value	type	length (byte)	instruction
	obd_type	N_STRING	1	Is OBD's manufacturer = 0 mean

				manufacturer0 = 1 mean manufacturer1
	,	CHAR	1	separator
	Data_stream	STRING	Indefinite length	Based on OBD's manufacturer to separate, see the following explain of message content
	,	CHAR	1	separator
	Location message,	STRING	Indefinite length	Pls reference to attached A
	,	CHAR	1	separator
	Status of terminal,	STRING	10	Pls reference to attached B

Detailed explain of message content for manufacturer 0

Data_stream	OBD's manufacturer0, it's indefinite length character,it analysis need platform server and database of manufacturer0
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5.4、 BQ88 Route dataflow

Message field	Filed value	type	length (byte)	instruction
Start flag	(	CHAR	1	
Device No.		C_STRING	12	
Command word	BQ88	C_STRING	4	
Message body	Message content	C_STRING		
Message content	0,route mileage,fuel,instantaneous fuel,YMMDDhhmmss,STATUS			
End flag	)	CHAR	1	
eg: (device No. BQ88,0,route mileage,fuel,instantaneous fuel,YMMDDhhmmss,STATUS)				
(044027395704BQ88,0,0,987,137,151101080905,00000000)				
response:	no			

Message content

Text field	Field value	type	length	instruction
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			(byte)	
	obd_type	N_STRING	1	Is OBD's manufacturer = 0 mean manufacturer0 = 1 mean manufacturer1
	,	CHAR	1	separator
	Data_stream	STRING	Indefinite length	Based on OBD's manufacturer to separate, see the following explain of message content
	,	CHAR	1	separator
	Location message	STRING	Indefinite length	Pls reference to attached A
	,	CHAR	1	separator
	Status of terminal	N_STRING	10	Pls reference to attached B

Detailed explain of message content for manufacturer0

Data_stream	Data type, separate by comma DWORD, DWORD, DWORD Each mean route mileage(m), fuel(ml), instantaneous fuel(ml/h)
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5.5、AQ80 , OBD working parameter setup

Message field	Field value	type	length (type)	insturction
Start flag	(	CHAR	1	
Device No.		C_STRING	12	
Command word	AQ80	C_STRING	4	
Message body	Message content	C_STRING		
Message content	OBDS,0,2,1,30,60 explain: OBDS, manufacturer ID, action index value, configuration value table (separate by comma)			
End flag	)	CHAR	1	

eg:	
(027024238925AQ80,OBDS,0,2,1,30,60)	
response:	(027024238925BQ80,OBDS,0,2,1,30,60)

Message content

Text field	Field value	type	length (byte)	instruction
	OBDS	N_STRING	4	Constant character
	,	CHAR	1	separator
	obd_type	N_STRING	1	Is OBD's manufacturer = 0 mean manufacturer0 = 1 mean manufacturer1
	,	CHAR	1	separator
	param_index	N_STRING	1	Index value
	,	CHAR	1	separator
	Param_buf	STRING	N	Set corresponding value for param_index (based on OBD manufacturer to separate the configuration, see the following instruction)

Index value and setup value table are as below:

Index value	Each corresponding parameter's data type and format, the result's response in the protocol of 56H Separate by comma
=0 mean setup Vehicle's type, Vehicle's discharge, Vehicle's mileage	Will change hex to corresponding character for transferring Separate by comma 4bit fixed length string, 0x0000 – 0000 4bit fixed length string, 0x0708 – 0708 8bit fixed length string, 0x00989680 - 00989680

<p>=1 mean set OBD device reset</p>	<p>No parameter</p> <p>The server make the following limit</p> <p>Not allow to reset under ignition</p>
<p>=2 mean set</p> <p>OBD device uplod switch</p> <p>OBD device upload's interval</p> <p>time</p> <p>OBD interval time of route</p> <p>data</p>	<p>Second is decimal, separate by comma</p> <p>(the server will limit 2 interval time is 0 or the value over 10)</p> <p>1bit fixed length string, 0 or 1</p> <p>Indefinite length string (second is unit)</p> <ul style="list-style-type: none"> ● 0 mean no upload ● Not 0, the value must over\geq 10 ● Upload's data is the data already setup –active data <p>Indefinite length string (unit is second)</p> <ul style="list-style-type: none"> ● 0 mean no upload ● Not 0, the value must over\geq 10 ● Upload's data is route mileage,fuel and instantaneous fuel
<p>=3 mean set and solve the fault message</p>	<p>No parameter</p>
<p>=4 mean set VIN</p>	<p>34bit instantaneous length string</p> <p>The sever must do the following limitation</p> <ul style="list-style-type: none"> ● 34bit instantaneous length string (will separate 17bit ASCII) ● VIN code is combination by capital letter and numbers ● The last 6 letters of VIN must be numbers,OBD need verify,if not will get fault <p>eg:</p> <ul style="list-style-type: none"> ● VIN code : LFVBA24B313010396 ● Corresponding ASCII -17bit 4C 46 56 42 41 32 34 42 33 31 33

	<p>30 31 30 33 39 36</p> <ul style="list-style-type: none"> ● Divide into 34bit <p>4 C 4 6 5 6 4 2 4 1 3 2 3 4 4 2 3 3 3 1 3 3 3 0 3 1 3 0 3 3 3 9 3 6</p>
=5 mean OBD device start to update	<p>No parameter</p> <p>The server make the following limitation</p> <p>No allow to update under ignition</p>
<p>=6 mean set the OBD device update package</p> <p>Index of current package</p> <p>Data of current package</p>	<p>Will change hex to corresponding charater for transferring</p> <p>Separate by comma</p> <p>3bit instantaneous length string (001,002...)</p> <p>800bit instantaneous length string, the last package is indefinite length</p> <ul style="list-style-type: none"> ● Each package's size is 132bytes ● Devide into 400*2 =800 ● The last package can be shortage
=7 end update, back to normal working	No parameter
=8 mean set alarm control	2bit instantaneous length string, 00 or 01
=9 mean set overspeed threshold value	<p>Will change hex to corresponding charater for transferring</p> <p>2bit instantaneous length string, 0x64 – 64</p>
=10 mean set low voltage threshold value	<p>Will change hex to corresponding charater for transferring</p> <p>4bit instantaneous length string, 0x2328 – 2328</p>
=11 mean set time threshold value of ignition on parking	<p>Will change hex to corresponding charater for transferring</p> <p>4bit instantaneous length string, 0x0258 - 0258</p>
=12 mean set threshold value of fast acceletion	<p>Will change hex to corresponding charater for transferring</p> <p>2bit instantaneous length string, 0x64 – 64</p>

=13 mean set threshold value of fast	Will change hex to corresponding charater for transferring 2bit instantaneous length string, 0x64 – 64
=14 mean set temperature threshold vlaueof cooler lique	Will change hex to corresponding charater for transferring 2bit instantaneous length string, 0x64 – 64

5.5.1 start to update

Message field	Field value	type	length (byte)	instruction
Start flag (		CHAR	1	
Device No.		C_STRING	12	
Command word	AQ80	C_STRING	4	
Message body	Message content	C_STRING		
Message content	OBDS,0,5 explain: OBDS, Manufacturer ID, Start to update			
End flag)		CHAR	1	
eg:				
(044027395704AQ80,OBDS,0,5)				
response:	(device No. AQ80,OBDS,0,5) (044027395704BQ80,OBDS,0,5)			

5.5.2 update data

Message field	Field value	type	length (byte)	instruction
Start flag (		CHAR	1	
Device No.		C_STRING	12	
Command word	AQ80	C_STRING	4	
Message body	Message content	C_STRING		

	Manufacturer ID,			
	End update flag			
End flag	)	CHAR	1	
eg:				
044027395704AQ80,OBDS,0,7)				
response:	(device No. AQ80,OBDS,0,7)			
	(044027395704BQ80,OBDS,0,7)			

Attached B Status of terminal

Format definition for GPS location message

Message field	Field value	type	length (byte)	instruction
date	YYMMDD	N_STRING	6	Take each 2letters for year,month and date 节
GPS location valid		CHAR	1	"A"or"V". A mean GPS data valid, V mean GPS data unvalid
latitude		N_STRING	9	First 2bytes is degree, Value from0~90; the last 7bytes is point
Latitude flag	"N"or"S"	CHAR	1	N mean north latitude,S mean south latitude
Longitude		N_STRING	10	First 3bytes is degree, Value from0~180; the last 7bytes is point
Longitude flag	"E"or"W"	CHAR	1	E mean east longitude,W mean west longitude
speed		N_STRING	5	Unit iskm/h
time	HHmmSS	N_STRING	6	Take each 2lettersfor h,m and s.

direction		N_STRING	6	
IO status	<p>1: main power status, '0' open, '1' shutdown.</p> <p>2: ACC status, '0' ACC close, '1' ACC open.</p> <p>3: mixer (counter-rotating) status, '0' not function, '1' forward, '2' reversal.</p> <p>4: light/heavy status, '0' not function, '1' light, '2' heavy.</p> <p>5: status of front door, '0' not function, '1' open door, '2' close door.</p> <p>6: status for cut-off oil and electric, '1' cut-off fuel, '0' reserve</p> <p>7: defence/cancel defence, '1' defence, '0' cancel defence</p> <p>8: status for shock or no shock, '1' shock, '0' no shock</p>	N_STRING	8	8 位IO
Mileage flag		CHAR	1	L mean with mileage
Mileage data	Upload's total mileage, maximum is 0xFFFFFFFF	H_STRING	8	Mileage data, unit is m
instruction:	No report in this protocol			

Attached C PID table

PID (hex)	Data bytes returned	Description	Min value	Max value	Units	Formula ^[a]
00	4	PIDs supported [01 - 20]				Bit encoded [A7..D0] == [PID \$01..PID \$20] <u>See below</u>
01	4	Monitor status since DTCs cleared. (Includes malfunction indicator lamp (MIL) status and number of DTCs.)				Bit encoded. <u>See below</u>
02	2	Freeze DTC				
03	2	Fuel system status				Bit encoded. <u>See below</u>
04	1	Calculated engine load value	0	100	%	$A * 100 / 255$
05	1	Engine coolant temperature	-40	215	°C	$A - 40$
06	1	Short term fuel % trim—Bank 1	-100 Subtracting Fuel (Rich Condition)	99.22 Adding Fuel (Lean Condition)	%	$(A - 128) * 100 / 128$
07	1	Long term fuel % trim—Bank 1	-100 Subtracting Fuel (Rich Condition)	99.22 Adding Fuel (Lean Condition)	%	$(A - 128) * 100 / 128$
08	1	Short term fuel % trim—Bank 2	-100 Subtracting Fuel (Rich Condition)	99.22 Adding Fuel (Lean Condition)	%	$(A - 128) * 100 / 128$
09	1	Long term fuel % trim—Bank 2	-100 Subtracting Fuel (Rich Condition)	99.22 Adding Fuel (Lean Condition)	%	$(A - 128) * 100 / 128$

0A	1	Fuel pressure	0	765	kPa (gauge)	A*3
0B	1	Intake manifold absolute pressure	0	255	kPa (absolute)	A
0C	2	Engine RPM	0	16,383.75	rpm	((A*256)+B)/4
0D	1	Vehicle speed	0	255	km/h	A
0E	1	Timing advance	-64	63.5	° relative to #1 cylinder	A/2 - 64
0F	1	Intake air temperature	-40	215	°C	A-40
10	2	MAF air flow rate	0	655.35	grams/sec	((A*256)+B) / 100
11	1	Throttle position	0	100	%	A*100/255
12	1	Commanded secondary air status				Bit encoded. <u>See below</u>
13	1	Oxygen sensors present				[A0..A3] == Bank 1, Sensors 1-4. [A4..A7] == Bank 2...
14	2	Bank 1, Sensor 1: Oxygen sensor voltage, Short term fuel trim	0 -100(lean)	1.275 99.2(rich)	Volts %	A/200 (B-128) * 100/128 (if B==\$FF, sensor is not used in trim calc)
15	2	Bank 1, Sensor 2: Oxygen sensor voltage, Short term fuel trim	0 -100(lean)	1.275 99.2(rich)	Volts %	A/200 (B-128) * 100/128 (if B==\$FF, sensor is not used in trim calc)
16	2	Bank 1, Sensor 3: Oxygen sensor voltage, Short term fuel trim	0 -100(lean)	1.275 99.2(rich)	Volts %	A/200 (B-128) * 100/128 (if B==\$FF, sensor is not used in trim calc)
17	2	Bank 1, Sensor 4: Oxygen sensor voltage, Short term fuel trim	0 -100(lean)	1.275 99.2(rich)	Volts %	A/200 (B-128) * 100/128 (if B==\$FF, sensor is not used in trim calc)
18	2	Bank 2, Sensor 1: Oxygen sensor voltage,	0 -100(lean)	1.275 99.2(rich)	Volts %	A/200 (B-128) * 100/128 (if B==\$FF, sensor is

		Short term fuel trim				not used in trim calc)
19	2	Bank 2, Sensor 2: Oxygen sensor voltage, Short term fuel trim	0 -100(lean)	1.275 99.2(rich)	Volts %	A/200 (B-128) * 100/128 (if B==\$FF, sensor is not used in trim calc)
1A	2	Bank 2, Sensor 3: Oxygen sensor voltage, Short term fuel trim	0 -100(lean)	1.275 99.2(rich)	Volts %	A/200 (B-128) * 100/128 (if B==\$FF, sensor is not used in trim calc)
1B	2	Bank 2, Sensor 4: Oxygen sensor voltage, Short term fuel trim	0 -100(lean)	1.275 99.2(rich)	Volts %	A/200 (B-128) * 100/128 (if B==\$FF, sensor is not used in trim calc)
1C	1	OBD standards this vehicle conforms to				Bit encoded. <u>See below</u>
1D	1	Oxygen sensors present				Similar to PID 13, but [A0..A7] == [B1S1, B1S2, B2S1, B2S2, B3S1, B3S2, B4S1, B4S2]
1E	1	Auxiliary input status				A0 == Power Take Off (PTO) status (1 == active) [A1..A7] not used
1F	2	Run time since engine start	0	65,535	seconds	(A*256)+B
20	4	PIDs supported [21 - 40]				Bit encoded [A7..D0] == [PID \$21..PID \$40] <u>See below</u>
21	2	Distance traveled with malfunction indicator lamp (MIL) on	0	65,535	km	(A*256)+B
22	2	Fuel Rail Pressure (relative to manifold vacuum)	0	5177.265	kPa	((A*256)+B) * 0.079
23	2	Fuel Rail Pressure (diesel, or gasoline direct inject)	0	655,350	kPa (gauge)	((A*256)+B) * 10

24	4	O2S1_WR_lambda(1): Equivalence Ratio Voltage	0 0	1.999 7.999	N/A V	$((A*256)+B)*2/65535$ or $((A*256)+B)/32768$ $((C*256)+D)*8/65535$ or $((C*256)+D)/8192$
25	4	O2S2_WR_lambda(1): Equivalence Ratio Voltage	0 0	2 8	N/A V	$((A*256)+B)*2/65535$ $((C*256)+D)*8/65535$
26	4	O2S3_WR_lambda(1): Equivalence Ratio Voltage	0 0	2 8	N/A V	$((A*256)+B)*2/65535$ $((C*256)+D)*8/65535$
27	4	O2S4_WR_lambda(1): Equivalence Ratio Voltage	0 0	2 8	N/A V	$((A*256)+B)*2/65535$ $((C*256)+D)*8/65535$
28	4	O2S5_WR_lambda(1): Equivalence Ratio Voltage	0 0	2 8	N/A V	$((A*256)+B)*2/65535$ $((C*256)+D)*8/65535$
29	4	O2S6_WR_lambda(1): Equivalence Ratio Voltage	0 0	2 8	N/A V	$((A*256)+B)*2/65535$ $((C*256)+D)*8/65535$
2A	4	O2S7_WR_lambda(1): Equivalence Ratio Voltage	0 0	2 8	N/A V	$((A*256)+B)*2/65535$ $((C*256)+D)*8/65535$
2B	4	O2S8_WR_lambda(1): Equivalence Ratio Voltage	0 0	2 8	N/A V	$((A*256)+B)*2/65535$ $((C*256)+D)*8/65535$
2C	1	Commanded <u>EGR</u>	0	100	%	$A*100/255$
2D	1	EGR Error	-100	99.22	%	$(A-128) * 100/128$
2E	1	Commanded evaporative purge	0	100	%	$A*100/255$
2F	1	Fuel Level Input	0	100	%	$A*100/255$
30	1	# of warm-ups since codes cleared	0	255	N/A	A
31	2	Distance traveled since codes cleared	0	65,535	km	$(A*256)+B$
32	2	Evap. System Vapor	-8,192	8,192	Pa	$((A*256)+B)/4$ (A and B are <u>two's</u>

		Pressure				complement signed)
33	1	Barometric pressure	0	255	kPa (Absolute)	A
34	4	O2S1_WR_lambda(1): Equivalence Ratio Current	0 -128	1.999 127.99	N/A mA	$((A*256)+B)/32,768$ $((C*256)+D)/256 - 128$
35	4	O2S2_WR_lambda(1): Equivalence Ratio Current	0 -128	2 128	N/A mA	$((A*256)+B)/32,768$ $((C*256)+D)/256 - 128$
36	4	O2S3_WR_lambda(1): Equivalence Ratio Current	0 -128	2 128	N/A mA	$((A*256)+B)/32768$ $((C*256)+D)/256 - 128$
37	4	O2S4_WR_lambda(1): Equivalence Ratio Current	0 -128	2 128	N/A mA	$((A*256)+B)/32,768$ $((C*256)+D)/256 - 128$
38	4	O2S5_WR_lambda(1): Equivalence Ratio Current	0 -128	2 128	N/A mA	$((A*256)+B)/32,768$ $((C*256)+D)/256 - 128$
39	4	O2S6_WR_lambda(1): Equivalence Ratio Current	0 -128	2 128	N/A mA	$((A*256)+B)/32,768$ $((C*256)+D)/256 - 128$
3A	4	O2S7_WR_lambda(1): Equivalence Ratio Current	0 -128	2 128	N/A mA	$((A*256)+B)/32,768$ $((C*256)+D)/256 - 128$
3B	4	O2S8_WR_lambda(1): Equivalence Ratio Current	0 -128	2 128	N/A mA	$((A*256)+B)/32,768$ $((C*256)+D)/256 - 128$
3C	2	Catalyst Temperature Bank 1, Sensor 1	-40	6,513.5	°C	$((A*256)+B)/10 - 40$
3D	2	Catalyst Temperature Bank 2, Sensor 1	-40	6,513.5	°C	$((A*256)+B)/10 - 40$
3E	2	Catalyst Temperature Bank 1, Sensor 2	-40	6,513.5	°C	$((A*256)+B)/10 - 40$
3F	2	Catalyst Temperature Bank 2, Sensor 2	-40	6,513.5	°C	$((A*256)+B)/10 - 40$
40	4	PIDs supported [41 -				Bit encoded [A7..D0] == [PID \$41..PID

		60]				\$60] <u>See below</u>
41	4	Monitor status this drive cycle				Bit encoded. <u>See below</u>
42	2	Control module voltage	0	65.535	V	$((A*256)+B)/1000$
43	2	Absolute load value	0	25,700	%	$((A*256)+B)*100/255$
44	2	Command equivalence ratio	0	2	N/A	$((A*256)+B)/32768$
45	1	Relative throttle position	0	100	%	$A*100/255$
46	1	Ambient air temperature	-40	215	°C	A-40
47	1	Absolute throttle position B	0	100	%	$A*100/255$
48	1	Absolute throttle position C	0	100	%	$A*100/255$
49	1	Accelerator pedal position D	0	100	%	$A*100/255$
4A	1	Accelerator pedal position E	0	100	%	$A*100/255$
4B	1	Accelerator pedal position F	0	100	%	$A*100/255$
4C	1	Commanded throttle actuator	0	100	%	$A*100/255$
4D	2	Time run with MIL on	0	65,535	minutes	$(A*256)+B$
4E	2	Time since trouble codes cleared	0	65,535	minutes	$(A*256)+B$
4F	4	Maximum value for equivalence ratio, oxygen sensor voltage, oxygen sensor current, and intake manifold absolute pressure	0, 0, 0, 0	255, 255, 255, 2550	, V, mA, kPa	A, B, C, D*10

50	4	Maximum value for air flow rate from mass air flow sensor	0	2550	g/s	A*10, B, C, and D are reserved for future use
51	1	Fuel Type				From fuel type table see below
52	1	Ethanol fuel %	0	100	%	A*100/255
53	2	Absolute Evap system Vapor Pressure	0	327.675	kPa	((A*256)+B)/200
54	2	Evap system vapor pressure	-32,767	32,768	Pa	((A*256)+B)-32767
55	2	Short term secondary oxygen sensor trim bank 1 and bank 3	-100	99.22	%	(A-128)*100/128 (B-128)*100/128
56	2	Long term secondary oxygen sensor trim bank 1 and bank 3	-100	99.22	%	(A-128)*100/128 (B-128)*100/128
57	2	Short term secondary oxygen sensor trim bank 2 and bank 4	-100	99.22	%	(A-128)*100/128 (B-128)*100/128
58	2	Long term secondary oxygen sensor trim bank 2 and bank 4	-100	99.22	%	(A-128)*100/128 (B-128)*100/128
59	2	Fuel rail pressure (absolute)	0	655,350	kPa	((A*256)+B) * 10
5A	1	Relative accelerator pedal position	0	100	%	A*100/255
5B	1	Hybrid battery pack remaining life	0	100	%	A*100/255
5C	1	Engine oil temperature	-40	210	°C	A - 40
5D	2	Fuel injection timing	-210.00	301.992	°	((A*256)+B)-26,880)/128
5E	2	Engine fuel rate	0	3212.75	L/h	((A*256)+B)*0.05
5F	1	Emission requirements to which vehicle is designed				Bit Encoded

60	4	PIDs supported [61 - 80]				Bit encoded [A7..D0] == [PID \$61..PID \$80] <u>See below</u>
61	1	Driver's demand engine - percent torque	-125	125	%	A-125
62	1	Actual engine - percent torque	-125	125	%	A-125
63	2	Engine reference torque	0	65,535	Nm	A*256+B
64	5	Engine percent torque data	-125	125	%	A-125 Idle B-125 Engine point 1 C-125 Engine point 2 D-125 Engine point 3 E-125 Engine point 4
65	2	Auxiliary input / output supported				Bit Encoded
66	5	Mass air flow sensor				
67	3	Engine coolant temperature				
68	7	Intake air temperature sensor				
69	7	Commanded EGR and EGR Error				
6A	5	Commanded Diesel intake air flow control and relative intake air flow position				
6B	5	Exhaust gas recirculation temperature				
6C	5	Commanded throttle actuator control and relative throttle position				
6D	6	Fuel pressure control system				

6E	5	Injection pressure control system				
6F	3	Turbocharger compressor inlet pressure				
70	9	Boost pressure control				
71	5	Variable Geometry turbo (VGT) control				
72	5	Wastegate control				
73	5	Exhaust pressure				
74	5	Turbocharger RPM				
75	7	Turbocharger temperature				
76	7	Turbocharger temperature				
77	5	Charge air cooler temperature (CACT)				
78	9	Exhaust Gas temperature (EGT) Bank 1				Special PID. <u>See below</u>
79	9	Exhaust Gas temperature (EGT) Bank 2				Special PID. <u>See below</u>
7A	7	Diesel particulate filter (DPF)				
7B	7	Diesel particulate filter (DPF)				
7C	9	Diesel Particulate filter (DPF) temperature				
7D	1	NOx NTE control area status				
7E	1	PM NTE control area status				

7F	13	Engine run time				
80	4	PIDs supported [81 - A0]				Bit encoded [A7..D0] == [PID \$81..PID \$A0] <u>See below</u>
81	21	Engine run time for Auxiliary Emissions Control Device(AECD)				
82	21	Engine run time for Auxiliary Emissions Control Device(AECD)				
83	5	NOx sensor				
84		Manifold surface temperature				
85		NOx reagent system				
86		Particulate matter (PM) sensor				
87		Intake manifold absolute pressure				
A0	4	PIDs supported [A1 - C0]				Bit encoded [A7..D0] == [PID \$A1..PID \$C0] <u>See below</u>
C0	4	PIDs supported [C1 - E0]				Bit encoded [A7..D0] == [PID \$C1..PID \$E0] <u>See below</u>
C3	?	?	?	?	?	Returns numerous data, including Drive Condition ID and Engine Speed*
C4	?	?	?	?	?	B5 is Engine Idle Request B6 is Engine Stop Request*
PID (hex)	Data bytes returned	Description	Min value	Max value	Units	Formula^[a]

