

# 车载终端通讯协议技术规范

Technical specifications of vehicle  
terminal communication protocol



# 车辆卫星定位系统终端通讯协议及数据格式

## Vehicle Satellite Positioning System Terminal Communication Protocol and Data Format

### 2 范围 scope

本规范规定了车辆卫星定位车载终端(以下简称终端)监控平台(以下简称平台)之间的通讯协议与数据格式,包括协议基础、通信连接、消息处理、协议分类与说明及数据格式。

This specification specifies the communication protocol and data format between the vehicle satellite positioning vehicle terminal (hereinafter referred to as terminal) monitoring platform (hereinafter referred to as platform), including protocol basis, communication connection, message processing, protocol classification and description and data format.

### 3 术语和定义、缩略语 Terms and definitions, abbreviations

#### 3.1 术语和定义 Terms and definitions

下列术语和定义适用于本文件。

The following terms and definitions apply to this document.

##### 3.1.1

数据通信链路异常

Abnormal data communication link

无线通信链路断开,或暂时挂起(如通话过程中)。

The wireless communication link is disconnected, or temporarily suspended (for example on the call).

##### 3.1.2

注册 register

终端向平台发送消息告知其安装在某一车辆上。

Send a message to the platform to inform to be installed on a vehicle.

##### 3.1.3

注销 log out

终端向平台发送消息告知从所安装车辆拆下。

The terminal sends a message to the platform to inform the device uninstall from the vehicle.

##### 3.1.4 鉴权 authentication

终端连接上平台时向平台发送消息以使平台验证自己身份。

When the terminal is connected to the platform, the message is sent to the platform to verify the platform identity.

### 3.1.5 位置汇报策略

location reporting strategy

定时、定距汇报或两者结合。

Timed, fixed-time reporting, or a combination of both.

### 3.1.6 位置汇报方案

location reporting program

根据相关条件确定周期汇报的间隔的规则。

Determine the rules for the interval of periodic reporting based on the relevant conditions.

### 3.1.7 拐点补传

additional points report while turning

终端在判断到车辆拐弯时发送位置信息汇报消息。采样频率不低于 1Hz，汽车方位角变化率不低于 15°/s，且至少持续 3s 以上。

The terminal sends a location information report message when it is determined that the vehicle is turning. Sampling frequency of not less than 1Hz, car azimuth

The rate of change is not less than 15 ° / s, and at least 3s or more.

### 3.1.8 电话接听策略

answering strategy

终端自动或手动接听来电的规则。

The terminal automatically or manually calls the rules of the call.

### 3.1.9

SMS 文本报警 SMS text alarm

终端报警时以 SMS 方式发送文本信息。

The terminal sends an SMS message in SMS mode.

### 3.1.10 事件项 event item

事件项由平台预设到终端，由事件编码和事件名称组成，驾驶员在遇到相应事件时操作终端，触发事件报告发送到平台。

The event item is set by the platform to the terminal, consisting of the event code and the event name, and the driver operates when the corresponding event is encountered Terminal, triggering event report sent to the platform.

### 3.2 缩略语 Abbreviations

下列缩略语适用于本文件。 The following abbreviations apply to this document.

APN——接入点名称(access point name)

GZIP——一个 GNU 自由软件的文件压缩程序(GNUzip)

LCD——液晶显示屏(liquid crystal display)

RSA——一种非对称密码算法（由 Ron Rivest、Adi Shamirh、Len Adleman 开发，取名来自三者的名字）

SMS——短消息服务(short message service)

TCP——传输控制协议(transmission control protocol)

TTS——文本到语音(text to speech)

UDP——用户数据报协议(user datagram protocol)

VSS——车辆速度传感器(vehicle speed sensor)

## 4 协议基础 Protocol basis

### 4.1 通信方式 way of communication

通信协议采用 TCP，平台作为服务器端，终端作为客户端。当数据通信链路异常时，终端可以采用 SMS 消息方式进行通信。

Communication protocol using TCP, the platform as a server, the terminal as a client. When the data communication link is abnormal, the terminal can use SMS message to communicate.

### 4.2 数据类型 type of data

协议消息中使用的数据类型见表 1:

The data types used in the protocol messages are shown in Table 1:

表 1 数据类型  
Table 1 data type

数据类型 type of data	描述及要求 Description and requirements
BYTE	无符号单字节整型（字节，8 位） Unsigned single byte integer (byte, 8 bits)
WORD	无符号双字节整型（字，16 位） Unsigned double-byte integer (word, 16-bit)
DWORD	无符号四字节整型（双字，32 位） Unsigned four byte integer (double word, 32 bits)
BYTE[n]	n 字节 N bytes
BCD[n]	8421 码，n 字节 8421 code, n bytes
STRING	GBK 编码，若无数据，置空 GBK code, if no data, empty

### 4.3 传输规则 Transmission rules

协议采用大端模式(big-endian)的网络字节序来传递字和双字。

The protocol uses the (big-endian) network byte order to pass words and double words.

约定如下: Agreed as follows:

——字节(BYTE)的传输约定: 按照字节流的方式传输;

- Byte (BYTE) transmission convention: according to the byte stream transmission;

——字(WORD)的传输约定: 先传递高八位, 再传递低八位;

- word (WORD) transmission agreement: first pass the high eight, and then pass the lower eight;

——双字(DWORD)的传输约定: 先传递高 24 位, 然后传递高 16 位, 再传递高八位, 最后传递低八位。

- double word (DWORD) transmission convention: first pass the high 24 bits, and then pass the high 16, and then pass the high eight, and finally pass the lower eight.

#### 4.4 消息的组成 The composition of the message

##### 4.4.1 消息结构 Message structure

每条消息由标识位、消息头、消息体和校验码组成, 消息结构图如图 1 所示: Each message consists of identification bits, message headers, message bodies and check codes. The message structure is shown in Figure 1:



图 1 消息结构图 Figure 1 message structure diagram

##### 4.4.2 标识位 Identification bit

采用 0x7e 表示, 若校验码、消息头以及消息体中出现 0x7e, 则要进行转义处理, 转义规则定义如下:

0x7e said, if the check code, the message header and the message body appears 0x7e, then to carry out the escape process, escape rules are defined as follows:

0x7e <----> 0x7d 后紧跟一个 0x02;

0x7e <----> 0x7d followed by a 0x02;

0x7d <----> 0x7d 后紧跟一个 0x01。

0x7d <----> 0x7d followed by a 0x01.

转义处理过程如下: 发送消息时: 消息封装——>计算并填充校验码——>转义; 接收消息时: 转义还原——>验证校验码——>解析消息。

The escape process is as follows: When sending a message: Message encapsulation -> Calculate and populate the check code -> Escape; receive message: Escape Restore -> Verify Checksum -> Resolve the message.

示例： Example:

发送一包内容为 0x30 0x7e 0x08 0x7d 0x55 的数据包，则经过封装如下： 0x7e 0x30 7d 0x02 0x08 0x7d 0x01 0x55 0x7e。

Send a packet containing the contents of 0x30 0x7e 0x08 0x7d 0x55 packets, then the package is as follows: 0x7e 0x30 7d 0x02 0x08 0x7d 0x01 0x55 0x7e.

#### 4.4.3 消息头 Message header

消息头内容详见表 2:

The contents of the message header are shown in Table 2:

表 2 消息头内容  
Table 2 message header content

起始字节 Start byte	字段 Field	数据类型 type of data	描述及要求 Description and requirements
0	消息 ID Message ID	WORD	
2	消息体属性 Message body properties	WORD	消息体属性格式结构图见图 2 Message body attribute format structure shown in Figure 2
4	终端手机号 Terminal phone number	BCD[6]	此处为 0 + IMEI 的后 11 位 Number 0 add the last 11 number of the IMEI
10	消息流水号 Message serial number	WORD	按发送顺序从 0 开始循环累加 Cycles accumulate from 0 in the order in which they are sent
12	消息包封装项 Message package		如果消息体属性中相关标识位确定消息分包处理，则该项有内容，否则无该项 If the message in the message body attribute determines the message packet processing, then the item has content, otherwise no item

消息体属性格式结构图如图 2 所示:

Message body attribute format as shown in Figure 2:

15	14	13	12	11	10	9	7	6	5	4	3	2	1	0
----	----	----	----	----	----	---	---	---	---	---	---	---	---	---

保留 Reserv ed	分包 Sub contra cting	数据加密方式 Data encryption	消息体长度 Message body length
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图 2 消息体属性格式结构图  
Figure 2 message body attribute format structure

数据加密方式： Data encryption:

——bit10~bit12 为数据加密标识位；

- bit10 ~ bit12 is the data encryption flag;

——当此三位都为 0，表示消息体不加密；

- when the three are 0, that message body is not encrypted;

——当第 10 位为 1，表示消息体经过 RSA 算法加密；

- when the first 10 is 1, that the message body through the RSA algorithm encryption;

——其他保留。

- other reservations.

分包： Subcontracting:

当消息体属性中第 13 位为 1 时表示消息体为长消息，进行分包发送处理，具体分包信息由消息包封装项决定；若第 13 位为 0，则消息头中无消息包封装项字段。

When the 13th bit of the message body attribute is 1, it indicates that the message body is a long message and the packet is sent. The packet information is determined by the packet encapsulation item. If the 13th bit is 0, there is no packet encapsulation in the message header item field.

消息包封装项内容见表 3: Message package package items in Table 3:

表 3 消息包封装项内容 Table 3 Package Package Contents

起始字节 Start byte	字段 Field	数据类型 type of data	描述及要求 Description and requirements
0	消息总包数 Total number of messages	WORD	该消息分包后的总包数 The total number of packets after the packet is divided
2	包序号 Package number	WORD	从 1 开始 Starting from 1

#### 4.4.4 校验码 Check code

校验码指从消息头开始，同后一字节异或，直到校验码前一个字节，占用一个字节。

Check code from the beginning of the message, with the same byte XOR, until the check code before a byte, take a byte.



## 5 通信连接 Communication connection

### 5.1 连接的建立 The establishment of the connection

终端与平台的数据日常连接可采用 TCP 或 UDP 方式，终端复位后应尽快与平台建立连接，连接建立后立即向平台发送终端鉴权消息进行鉴权。

The daily connection between the terminal and the platform can be done using TCP or UDP. After the terminal is reset, the connection should be established with the platform as soon as possible. After the connection is established, the terminal will send the terminal authentication message to the platform for authentication.

### 5.2 连接的维持 The maintenance of the connection

连接建立和终端鉴权成功后，在没有正常数据包传输的情况下，终端应周期性向平台发送终端心跳消息，平台收到后向终端发送平台通用应答消息，发送周期由终端参数指定。

After the connection establishment and the terminal authentication succeed, the terminal shall send the terminal heartbeat message to the platform periodically without the normal packet transmission. The platform shall send the platform general reply message to the terminal, and the sending period shall be specified by the terminal parameter.

### 5.3 连接的断开 The connection is disconnected

平台和终端均可根据 TCP 协议主动断开连接，双方都应主动判断 TCP 连接是否断开。  
The platform and the terminal both can take the initiative to disconnect according to the TCP protocol. Both sides should take the initiative to judge whether the TCP connection is disconnected.

平台判断 TCP 连接断开的方法：

Platform to determine the TCP connection disconnection method:

——根据 TCP 协议判断出终端主动断开；

- according to the TCP protocol to determine the terminal active disconnect;

——相同身份的终端建立新连接，表明原连接已断开；

- the same identity of the terminal to establish a new connection, that the original connection has been disconnected;

——在一定的时间内未收到终端发出的消息，如终端心跳。

- in a certain period of time did not receive the message sent by the terminal, such as terminal heartbeat.

终端判断 TCP 连接断开的方法： Terminal to determine the TCP connection broken method:

——根据 TCP 协议判断出平台主动断开；

- According to the TCP protocol to determine the platform active disconnect;

——数据通信链路断开；

- data communication link disconnected;

——数据通信链路正常，达到重传次数后仍未收到应答。

- The data communication link is normal and no response has been received after the number of re-transmissions has been reached.

## 6 消息处理 Message processing

### 6.1 TCP 消息处理 TCP message processing

#### 6.1.1 平台主发的消息 Platform main news

所有平台主发的消息均要求终端应答，应答分为通用应答和专门应答，由各具体功能协议决定。发送方等待应答超时后，应对消息进行重发。应答超时时间和重传次数由平台参数指定，每次重传后的应答超时时间的计算公式见式(1)：

All the main messages of the platform require the terminal to answer, the response is divided into general response and special response, determined by the specific function of the agreement. When the sender waits for a response timeout, the message is re-transmitted. The response timeout time and the number of re-transmissions are specified by the platform parameters. The calculation of the response timeout time after each re-transmission is shown in Equation (1):

$$TN+1=TN \times (N+1)$$

TN+1——每次重传后的应答超时时间；

TN + 1 - response timeout after each re-transmission;

TN——前一次的应答超时时间；

TN - the previous response timeout;

N——重传次数。

N - number of re-transmissions.

#### 6.1.2 终端主发的消息 Terminal main message

##### 6.1.2.1 数据通信链路正常 The data communication link is normal

数据通信链路正常时，所有终端主发的消息均要求平台应答，应答分为通用应答和专门应答，由各具体功能协议决定。终端等待应答超时后，应对消息进行重发。应答超时时间和重传次数由终端参数指定，每次重传后的应答超时时间按式（1）进行计算。对于终端发送的关键报警消息，若达到重传次数后仍未收到应答，则应对其进行保存。以后在发送其它消息前要先发送保存的关键报警消息。

When the data communication link is normal, all the messages sent by the terminal request the platform to response, the response is divided into general response and special response, determined by the specific function of the agreement. After the terminal waits for the response to be timed out, the message should be re-transmitted. The response timeout time and the number of re-transmissions are specified by the terminal parameters. The response

timeout time after each re-transmission is calculated according to equation (1). For a critical alarm message sent by the terminal, if no acknowledgment is received after the number of re-transmissions has been received, it should be saved. And then send the saved key alarm message before sending other messages.

#### 6.1.2.2 数据通信链路异常 Data communication link exception

数据通信链路异常时，终端应对需发送的位置信息汇报消息进行保存。在数据通信链路恢复正常后，立即发送保存的消息。

When the data communication link is abnormal, the terminal shall save the location information report message. After the data communication link returns to normal, the saved message will be sent immediately.

#### 6.2 SMS 消息处理 SMS message processing

终端通信方式切换为 GSM 网络的 SMS 消息方式时，采用 PDU 八位编码方式，对于长度超过 140 字节的消息，应按照 GSM 网络的短信服务规范 GSM 03.40 进行分包处理。

When the terminal communication mode is switched to the SMS message mode of the GSM network, the PDU 8-bit encoding mode is used. For messages with a length exceeding 140 bytes, the packet processing should be performed according to the GSM 3G SMS service standard GSM 03.40.

SMS 消息的应答、重传和保存机制同 6.1，但应答超时时间及重传次数应按照表 10 中参数 ID0x0006 及 0x0007 的相关设定值处理。

The response, re-transmission and saving mechanism of the SMS message is the same as 6.1, but the response timeout and the number of re-transmissions shall be processed according to the relevant settings of the parameters ID0x0006 and 0x0007 in Table 10.

### 7 协议分类 Protocol classification

#### 7.1 概述 Overview

以下按功能分类对协议进行描述。无特别指明，缺省采用 TCP 通信方式。协议中消息名称与消息 ID 的消息对照表见附录 A。

The following describes the protocol by function classification. No special instructions, the default use of TCP communication. See Appendix A for a message comparison of message names and message IDs in the protocol.

#### 7.2 终端管理类协议 Terminal management class protocol

##### 7.2.1 终端注册/注销 Terminal registration / cancellation

终端在未注册状态下，应首先进行注册，注册成功后终端将获得鉴权码并进行保存，鉴权码在终端登录时使用。车辆需要拆除或更换终端前，终端应该执行注销操作，取消终端和车辆的对应关系。

The terminal shall be registered first, after the registration, the authentication code will be saved and requested when login. Before the vehicles uninstall or change the terminal, it shall be log out, cancel the link between the terminal and the vehicle.

终端若选择通过 SMS 方式发送终端注册和终端注销消息，平台应通过 SMS 方式发送终端注册应答对终端注册进行回复，通过 SMS 方式发送平台通用应答对终端注销进行回复。

If the terminal chooses to send the terminal registration and terminal log out message through SMS, the platform shall send the terminal registration reply through SMS to reply to the terminal registration and reply to the terminal log out by sending the platform common response via SMS.

#### 7.2.2 终端鉴权 Terminal authentication

终端注册后每次在与平台建立连接后，应立即进行鉴权。鉴权成功前终端不得发送其它消息。

After the terminal is registered, it should be authenticated immediately after establishing a connection with the platform. The front end of the authentication must not send other messages.

终端通过发送终端鉴权消息进行鉴权，平台回复平台通用应答消息。

The terminal responds by sending a terminal authentication message, and the platform replies the platform common reply message.

#### 7.2.3 设置/查询终端参数 Set / query terminal parameters

平台通过发送设置终端参数消息设置终端参数，终端回复终端通用应答消息。平台通过发送查询终端参数消息查询终端参数，终端回复查询终端参数应答消息。不同网络制式下的终端应支持各自网络的一些特有参数。

The platform sets the terminal parameters by sending a terminal parameter message, and the terminal responds to the terminal general reply message. The platform queries the terminal parameters by sending a query terminal parameter message, and the terminal responds to the terminal parameter response message. Terminals under different network formats should support some of the unique parameters of their networks.

#### 7.2.4 终端控制 Terminal control

平台通过发送终端控制消息对终端进行控制，终端回复终端通用应答消息。

The platform controls the terminal by sending a terminal control message, and the terminal responds to the terminal general reply message.

### 7.3 位置、报警类协议 Location, alarm class protocol

#### 7.3.1 位置信息汇报 Location information report

终端根据参数设定周期性发送位置信息汇报消息。

The terminal sends the location information report message periodically according to the parameter setting.

根据参数控制，终端在判断到车辆拐弯时可发送位置信息汇报消息。

According to the parameter control, the terminal can send the position information report message when it is judged that the vehicle turns.

### 7.3.2 位置信息查询 Location information query

平台通过发送位置信息查询消息，查询指定车载终端当时位置信息，终端回复位置信息查询应答消息。

The platform inquires the location information of the designated vehicle terminal by sending the location information inquiry message, and the terminal returns the location information query response message.

### 7.3.3 临时位置跟踪控制 Temporary location tracking control

平台通过发送临时位置跟踪控制消息启动/停止位置跟踪，位置跟踪要求终端停止之前的周期汇报，按消息指定时间间隔进行汇报。终端回复终端通用应答消息。

The platform initiates / stops location tracking by sending a temporary location tracking control message, and the location tracking requires periodic reporting before the terminal is stopped and reported at the specified time interval. The terminal responds to the terminal general acknowledgment message.

### 7.3.4 终端报警 Terminal alarm

终端判断满足报警条件时发送位置信息汇报消息，在位置汇报消息中设置相应的报警标志，平台可通过回复平台通用应答消息进行报警处理。

When the terminal judges that the alarm condition is met, the location information report message is sent and the corresponding alarm flag is set in the location report message. The platform can report the alarm message through the reply platform common response message.

各报警类型见位置信息汇报消息体中的描述。报警标志维持至报警条件解除的报警，在报警条件解除后应立即发送位置信息汇报消息，清除相应的报警标志。

Each alarm type is described in the description of the location information report message body. The alarm flag is maintained until the alarm condition is released. After the alarm condition is released, the position information report message should be sent immediately to clear the corresponding alarm flag.

## 7.6 车辆控制类协议 Vehicle control class agreement

平台通过发送车辆控制消息，要求终端按指定的操作对车辆进行控制。终端收到后立即回复终端通用应答消息。之后终端对车辆进行控制，根据结果再回复车辆控制应答消息。

The platform allows the terminal to control the vehicle by the specified operation by sending a vehicle control message. The terminal immediately replies to the terminal general reply message. The terminal then controls the vehicle and replies to the vehicle control response message based on the result.

## 7.7 车辆管理类协议 Vehicle management class agreement

平台通过发送设置圆型区域、设置矩形区域、设置多边形区域、设置路线等消息，对终端进行区域和线路设置。终端根据区域和线路属性判断是否满足报警条件，报警包括超速报警、进出区域/路线报警和路段行驶时间不足/过长报警，应在位置信息汇报消息中包含相应的位置附加信息。

The platform sets the area of the circle, sets the polygon area, sets the route, and so on, and sets the area and the line for the terminal. The terminal determines whether the alarm condition is met according to the region and the line attribute. The alarm includes the over speed alarm, the outbound area / route alarm and the road driving time is insufficient / too long. The location information report message should contain the corresponding location additional information.

区域或路线 ID 取值范围为 1~0xFFFFFFFF。若设置的 ID 与终端中已有的同类型区域或路线 ID 重复，则已有的被更新。

Area or route ID is in the range 1 to 0FFFFFFFF. If the set ID is duplicated with the same type or route ID already in the terminal, it is updated.

平台也可通过删除圆型区域、删除矩形区域、删除多边形区域、删除路线等消息，删除终端上保存的区域和路线。

The platform can also delete the area and route saved on the terminal by deleting the circular area, deleting the rectangular area, deleting the polygon area, deleting the route, and so on.

设置/删除区域和路线消息，需要终端回复终端通用应答消息。

Set / delete area and route messages, the terminal reply to the terminal general reply message.

### 7.8.3 采集行驶记录数据 Collect travel record data

平台通过发送行驶记录数据采集命令消息，要求终端上传指定的数据，该消息需要终端回复行驶记录数据上传消息。

The platform requests the terminal to upload the specified data by sending a travel record data acquisition command message, which requires the terminal to reply to the travel record data upload message.

### 7.8.4 下传行驶记录参数 Download the travel record parameters

平台通过发送行驶记录参数下传命令消息，要求终端上传指定的数据，该消息需要终端回复终端通用应答消息。

The platform sends a command message by sending a drive record parameter, requesting the terminal to upload the specified data, which requires the terminal to reply to the terminal general reply message.

### 7.9.3 摄像头立即拍摄 Camera shoot immediately

平台通过发送摄像头立即拍摄命令消息，对终端下发拍摄命令，该消息需要终端回复终端通用应答消息。若指定实时上传，则终端拍摄后上传摄像头图像/视频，否则对图像/视频进行存储。

The platform sends a command shooting message to the terminal by sending a command message that camera shooting immediately. The message requires the terminal to reply to the terminal general acknowledgment message. If the real-time upload is specified, it will upload the camera image / video after shooting. Otherwise, the image / video will be stored.

#### 7.9.4 录音开始 The recording starts

平台通过发送录音开始命令消息，对终端下发录音命令，该消息需要终端回复终端通用应答消息。若指定实时上传，则终端录制后上传音频数据，否则对音频数据进行存储。

The platform sends a recording command to the terminal by sending a recording start command message, which requires the terminal to reply to the terminal general acknowledgment message. If the real-time upload is specified, the audio data will be uploaded after recorded, otherwise the audio data will be stored.

#### 7.9.5 检索终端存储多媒体数据和提取 The retrieval terminal stores multimedia data and extracts

平台通过发送存储多媒体数据检索消息，获得终端存储多媒体数据的情况，该消息需要终端回复存储多媒体数据检索应答消息。

The platform obtains the case where the terminal stores the multimedia data by sending the stored multimedia data retrieval message, which requires the terminal to reply to store the multimedia data retrieval response message.

根据检索结果，平台可以通过发送存储多媒体数据上传消息，要求终端上传指定的多媒体数据，该消息需要终端回复终端通用应答消息。

According to the retrieval result, the platform may request the terminal to upload the designated multimedia data by sending the stored multimedia data upload message, which needs the terminal to reply to the terminal general reply message.

#### 7.10 通用数据传输类 General data transfer class

协议中未定义但实际使用中需传递的消息可使用数据上行透传消息和数据下行透传消息进行上下行数据交换。

Messages that are not defined in the protocol but are to be used in actual use can be used for data exchange between the data upstream transparent message and the data downstream transparent message.

终端可采用 GZIP 压缩算法压缩较长消息，用数据压缩上报消息上传。

The terminal can use the GZIP compression algorithm to compress longer messages and upload messages with data compression.

#### 7.11 加密类协议 Encryption class protocol

平台与终端之间若需加密通信，可采用 RSA 公钥密码系统。平台通过发送平台 RSA 公钥消息向终端告知自己的 RSA 公钥，终端回复终端 RSA 公钥消息，反之亦然。

Between the platform and the terminal for encrypted communication, RSA public key cryptography can be used. The platform informs the terminal of its own RSA public key by

sending platform RSA public key message, and the terminal replies to the terminal RSA public key message, and vice versa.

### 7.12 分包消息 Subcontract message

消息采用分包发送时，其分包消息应采用连续递增的流水号。

When the messages send by sub-packet, its packet message shall be use a continuously increasing serial number.

对分包消息的应答，如果没有专门的应答指令，则接收方可对所有分包消息采用一条通用应答，或对每条分包消息采用一条通用应答，并使用结果字段（成功/失败）告知发送方是否正确收到所有的分包消息。在未正确收到所有的分包消息时，接收方可采用补传分包请求命令要求发送方重传缺失的分包消息。发送方应采用原始消息将重传包 ID 列表中的分包重发一次，重传分包与原始分包消息完全一致。

Response to subcontracting messages, if there is no dedicated acknowledgment, the recipient can adopt a general response to all packet messages or use a generic response for each packet message and use the result field (success / failure) to inform the sender has received all the packet messages correctly or not. When all packet messages are not received correctly, the recipient can request the sender to re-transmit the missing packet message by sending the Makeup Subcontract Request command. The sender shall re-transmit the packet in the packet ID list by using the original message, and the re-transmission packet is exactly the same as the original packet message.

## 8 数据格式 Data Format

### 8.1 终端通用应答 Terminal general response

消息 ID: 0x0001。

Message ID: 0x0001.

终端通用应答消息体数据格式见表 4。

Terminal common response message body data format in Table 4.

表 4 终端通用应答消息体数据格式  
Table 4 Terminal General Reply Message Body Data Format

起始字节 Start byte	字段 Field	数据类型 type of data	描述及要求 Description and requirements
0	应答流水号 Answer the serial number	WORD	对应的平台消息的流水号 The serial number of the corresponding platform message
2	应答 ID Answer ID	WORD	对应的平台消息的 ID The ID of the corresponding platform message
4	结果 result	BYTE	0: 成功/确认; 1: 失败; 2: 消息有误; 3: 不支持



			0: success / confirmation; 1: failure; 2: message is wrong; 3: not supported
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## 8.2 平台通用应答 Platform Universal Response

消息 ID: 0x8001。

Message ID: 0x8001.

平台通用应答消息体数据格式见表 5。

Platform common response message body data format in Table 5.

表 5 平台通用应答消息体数据格式

Table 5 Platform Generic Response Message Body Data Format

起始字节 Start byte	字段 Field	数据类型 type of data	描述及要求 Description and requirements
0	应答流水号 Answer the serial number	WORD	对应的终端消息的流水号 The serial number of the corresponding terminal message
2	应答 ID Answer ID	WORD	对应的终端消息的 ID The ID of the corresponding terminal message
4	结果 result	BYTE	0: 成功/确认; 1: 失败; 2: 消息有误; 3: 不支持; 4: 报警处理确认; 0: success / confirmation; 1: failure; 2: message is wrong; 3: not supported; 4: alarm processing confirmation;

## 8.3 终端心跳 Terminal heartbeat

消息 ID: 0x0002。

Message ID: 0x0002.

终端心跳数据消息体为空。

Terminal heartbeat data message body is empty.

## 8.5 终端注册 Terminal registration

消息 ID: 0x0100。

Message ID: 0x0100.

终端注册消息体数据格式见表 7。

The format of the terminal registration message body is shown in Table 7.

表 7 终端注册消息体数据格式

Table 7 Terminal Registration Message Body Data Format

起始字节 Start byte	字段 Field	数据类型 type of data	描述及要求 Description and requirements
0	省域 ID Province ID	WORD	标示终端安装车辆所在的省域，0 保留，由平台取默认值。省域 ID 采用 GB/T 2260 中规定的行政区划代码六位中前两位。 Mark the terminal where the vehicle is installed, 0 is reserved, and the default value is taken by the platform. Provincial ID ID GB / T 2260 in the provisions of the administrative division code six in the top two.
2	市县域 ID City ID ID	WORD	标示终端安装车辆所在的市域和县域，0 保留，由平台取默认值。市县域 ID 采用 GB/T 2260 中规定的行政区划代码六位中后四位。 Mark the terminal installation of the vehicle where the city and county, 0 reservations, by the platform to take the default value. City and county ID ID GB / T 2260 in the provisions of the administrative division code six in the last four.
4	制造商 ID Manufacturer ID	BYTE[5]	5 个字节，IMEI 的前 5 位 5 bytes, The first 5 digits of the IMEI
9	终端型号 Terminal model	BYTE[20]	20 个字节，此终端型号由制造商自行定义，位数不足时，后补“0X00”。 20 bytes, the terminal model by the manufacturer to define their own, the number of bits is insufficient, after the fill "0X00".
29	终端 ID Terminal ID	BYTE[7]	7 个字节，由大写字母和数字组成，此终端 ID 由制造商自行定义，位数不足时，后补“0X00”。 7 bytes, composed of capital letters and numbers, the terminal ID by the manufacturer to define their own, the number of bits is insufficient, after the fill "0X00".
36	车牌颜色 License plate color	BYTE	车牌颜色，按照 JT/T415-2006 的 5.4.12。未上牌时，取值为 0。 License plate color, according to JT / T415-2006 5.4.12. When the card is not on, the value is 0.
37	车辆标识 Vehicle identification	STRING	车牌颜色为 0 时，表示车辆 VIN；否则，表示公安交通管理部门颁发的机动车号牌。 When the license plate color is 0, it indicates the vehicle VIN; otherwise, it indicates the motor vehicle license plate issued by the public security traffic management department.

## 8.6 终端注册应答 Terminal registration response

消息 ID: 0x8100。

Message ID: 0x8100.

终端注册应答消息体数据格式见表 8。

The format of the terminal registration response message is shown in Table 8.

表 8 终端注册应答消息体数据格式

Table 8 Terminal Registration Response Message Body Data Format

起始字节 Start byte	字段 Field	数据类型 type of data	描述及要求 Description and requirements
0	应答流水号 Answer the serial number	WORD	对应的终端注册消息的流水号 The serial number of the corresponding terminal registration message
2	结果 result	BYTE	0: 成功; 1: 车辆已被注册; 2: 数据库中无该车 辆; 3: 终端已被注册; 4: 数据库中无该终端 0: success; 1: vehicle has been registered; 2: no vehicle in the database; 3: terminal has been registered; 4: no terminal in the database
3	鉴权码 Authentication code	STRING	只有在成功后才有该字段 Only after the success of the field

### 8.8 终端鉴权 Terminal authentication

消息 ID: 0x0102。

Message ID: 0x0102.

终端鉴权消息体数据格式见表 9。

The format of the terminal authentication message is shown in Table 9.

表 9 终端鉴权消息体数据格式

Table 9 Terminal Authentication Message Body Data Format

起始字节 Start byte	字段 Field	数据类型 type of data	描述及要求 Description and requirements
0	鉴权码 Authentication code	STRING	终端重连后上报鉴权码 The terminal reconnects the authentication code

### 8.15 查询终端属性应答 Query terminal attribute response

消息 ID: 0x0107。

Message ID: 0x0107.

查询终端属性应答消息体数据格式见表 20。设备每次与平台建立了连接后，会主动上报一个 0107 包

Query the terminal attribute response message body data format in Table 20. Each time the device establishes a connection with the platform, it will report a 0107 packet.

表 20 查询终端属性应答消息体数据格式

Table 20 Query Terminal Attribute Response Message Body Data Format

起始字节 Start byte	字段 Field	数据类型 type of data	描述及要求 Description and requirements
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0	终端类型 terminal type	WORD	bit0, 0: 不适用客运车辆, 1: 适用客运车辆; bit1, 0: 不适用危险品车辆, 1: 适用危险品车辆; bit2, 0: 不适用普通货运车辆, 1: 适用普通货运车辆; bit3, 0: 不适用出租车辆, 1: 适用出租车辆; bit6, 0: 不支持硬盘录像, 1: 支持硬盘录像; bit7, 0: 一体 机, 1: 分体机。 Bit 0,0: not applicable to passenger vehicles, 1: for passenger vehicles; Bit 1,0: Not applicable Dangerous goods vehicles, 1: Dangerous goods vehicles; Bit 2,0: does not apply to ordinary cargo vehicles, 1: for ordinary freight vehicles; bit3,0: not applicable rental vehicles, 1: suitable for rental vehicles; bit6,0: does not support hard disk video, 1: support hard disk video; bit7,0 : One machine, 1: split machine.
2	制造商 ID Manufacturer ID	BYTE[5]	5 个字节, 终端制造商编码。 5 bytes, the terminal manufacturer code.
7	终端型号 Terminal model	BYTE[20]	20 个字节, 此终端型号由制造商自行定义, 位数不足 时, 后补“0X00”。 20 bytes, the terminal model by the manufacturer to define their own, the number of bits is insufficient, after the fill "0X00".
27	终端 ID Terminal ID	BYTE[7]	7 个字节, 由大写字母和数字组成, 此终端 ID 由制造商 自行定义, 位数不足时, 后补“0X00”。 7 bytes, composed of capital letters and numbers, the terminal ID by the manufacturer to define their own, the number of bits is insufficient, after the fill "0X00".
42	终端 SIM 卡 ICCID Terminal SIM card ICCID	BCD[10]	终端 SIM 卡 ICCID 号 Terminal SIM card ICCID number
52	终端硬件版本号长度 Terminal hardware version number length	BYTE	n
53	终端硬件版本号 Terminal hardware version number	STRING	
53+n	终端固件版本号长度 Terminal firmware version number length	BYTE	m
54+n	终端固件版本号 Terminal firmware version number	STRING	
54+n+m	GNSS 模块属性 GNSS module properties	BYTE	bit0, 0: 不支持 GPS 定位, 1: 支持 GPS 定位; bit1, 0: 不支持北斗定位, 1: 支持北斗定位; bit2, 0: 不支 持 GLONASS 定位, 1: 支持 GLONASS 定位; bit3, 0: 不 支持 Galileo 定位, 1: 支持 Galileo 定位。 Bit2,0: does not support GPS positioning, 1: support GPS positioning; bit1,0: does not support Beidou positioning, 1: support Beidou positioning; bit2,0: does not support GLONASS positioning, 1: support GLONASS positioning bit3,0: not Support Galileo positioning, 1: support Galileo positioning.

55+n+m	通信模块属性 Communication module attributes	BYTE	<p>bit0, 0: 不支持 GPRS 通信, 1: 支持 GPRS 通信; bit1, 0: 不支持 CDMA 通信, 1: 支持 CDMA 通信; bit2, 0: 不支持 TD-SCDMA 通信, 1: 支持 TD-SCDMA 通信; bit3, 0: 不支持 WCDMA 通信, 1: 支持 WCDMA 通信; bit4, 0: 不支持 CDMA2000 通信, 1: 支持 CDMA2000 通信。 bit5, 0: 不支持 TD-LTE 通信, 1: 支持 TD-LTE 通信; bit7, 0: 不支持其他通信方式, 1: 支持其他通信方式。</p> <p>Bit 0,0: does not support GPRS communication, 1: support GPRS communication; bit1,0: does not support CDMA communication, 1: support CDMA communication; bit2,0: does not support TD-SCDMA communication, 1: support TD-SCDMA communication; bit3 0: does not support WCDMA communication, 1: support WCDMA communication; bit4,0: does not support CDMA2000 communication, 1: support CDMA2000 communication. Bit5,0: does not support TD-LTE communication, 1: support TD-LTE communication; bit7,0: does not support other communication methods, 1: support other communication methods.</p>
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### 8.18 位置信息汇报 Location information report

消息 ID: 0x0200。 Message ID: 0x0200.

位置信息汇报消息体由位置基本信息和位置附加信息项列表组成, 消息结构图如图 3 所示:

The location information message body consists of the location basic information and the location additional information item list. The message structure chart is shown in Figure 3:

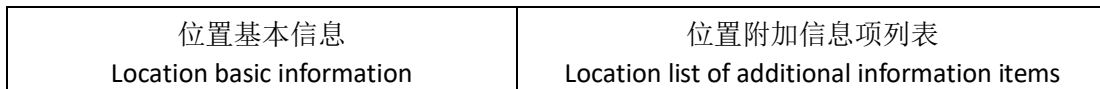


图 3 位置汇报消息结构图

Figure 3 Location report message structure

位置附加信息项列表由各位置附加信息项组合, 也可没有, 根据消息头中的长度字段确定。

The location of the additional information item list is combined by the location of the additional information item, or no, based on the length field in the message header.

位置基本信息数据格式见表 23。

The location basic information data format is shown in Table 23.

表 23 位置基本信息数据格式

Table 23 Location Basic Information Data Format

起始字节 Start byte	字段 Field	数据类型 type of data	描述及要求 Description and requirements
0	报警标志 Alarm sign	DWORD	报警标志位定义见表 24 The alarm flag is defined in Table 24

4	状态 status	DWORD	状态位定义见表 25 The status bits are defined in Table 25
8	纬度 latitude	DWORD	以度为单位的纬度值乘以 10 的 6 次方，精确到百万分之一度 The latitude value in degrees is multiplied by 10 by 6, accurate to parts per million
12	经度 longitude	DWORD	以度为单位的经度值乘以 10 的 6 次方，精确到百万分之一度 The longitude of the unit is multiplied by 10 of the 6th order, accurate to the parts per million
16	高程 Elevation	WORD	海拔高度，单位为米 (m) Altitude in meters (m)
18	速度 speed	WORD	1/10km/h
20	方向 direction	WORD	0-359，正北为 0，顺时针 0-359, positive north 0, clockwise
21	时间 time	BCD[6]	YY-MM-DD-hh-mm-ss (GMT+8 时间，标准中之后涉及的时间均采用此时区) YY-MM-DD-hh-mm-ss (GMT + 8 time, after the standard involved And the time are used in this time zone)

表 24 报警标志位定义  
Table 24 Alarm flag definition

位 Bit	定义 definition	处理说明 Processing instructions
0	1: 紧急报警，触动报警开关后触发 1: emergency alarm, trigger the alarm switch after the trigger	收到应答后清零 Receive a reply and clear it
1	1: 超速报警 1: speed alarm	标志维持至报警条件解除 The flag is maintained until the alarm condition is released
2	1: 疲劳驾驶 1: fatigue driving	标志维持至报警条件解除 The flag is maintained until the alarm condition is released
3	1: 危险预警 1: dangerous warning	收到应答后清零 Receive a reply and clear it
4	1: GNSS 模块发生故障 1: GNSS module has failed	标志维持至报警条件解除 The flag is maintained until the alarm condition is released
5	1: GNSS 天线未接或被剪断 1: The GNSS antenna is not connected or cut	标志维持至报警条件解除 The flag is maintained until the alarm condition is released
6	1: GNSS 天线短路 1: GNSS antenna short circuit	标志维持至报警条件解除 The flag is maintained until the alarm condition is released
7	1: 终端主电源欠压 1: terminal main power undervoltage	标志维持至报警条件解除 The flag is maintained until the alarm condition is released
8	1: 终端主电源掉电 1: The terminal main power is powered down	标志维持至报警条件解除 The flag is maintained until the alarm condition is released

位 Bit	定义 definition	处理说明 Processing instructions
9	1: 终端 LCD 或显示器故障 1: Terminal LCD or monitor failure	标志维持至报警条件解除 The flag is maintained until the alarm condition is released
10	1: TTS 模块故障 1: TTS module is faulty	标志维持至报警条件解除 The flag is maintained until the alarm condition is released
11	1: 摄像头故障 1: camera failure	标志维持至报警条件解除 The flag is maintained until the alarm condition is released
12	1: 道路运输证 IC 卡模块故障 1: road transport card IC card module failure	标志维持至报警条件解除 The flag is maintained until the alarm condition is released
13	1: 超速预警 1: speeding warning	标志维持至报警条件解除 The flag is maintained until the alarm condition is released
14	1: 疲劳驾驶预警 1: fatigue driving warning	标志维持至报警条件解除 The flag is maintained until the alarm condition is released
15	1: 震动报警 1: Vibration alarm	标志维持至报警条件解除 The flag is maintained until the alarm condition is released
16	1: 光感报警 1: Light alarm	标志维持至报警条件解除 The flag is maintained until the alarm condition is released
17	1: 磁感报警 1: Magnetic inductive alarm	标志维持至报警条件解除 The flag is maintained until the alarm condition is released
18	1: 当天累计驾驶超时 1: the cumulative driving overtime on that day	标志维持至报警条件解除 The flag is maintained until the alarm condition is released
19	1: 超时停车 1: timeout parking	标志维持至报警条件解除 The flag is maintained until the alarm condition is released
20	1: 进出区域 1: out of the area	收到应答后清零 Receive a reply and clear it
21	1: 进出路线 1: out of the route	收到应答后清零 Receive a reply and clear it
22	1: 路段行驶时间不足/过长 1: The road travel time is insufficient / too long	收到应答后清零 Receive a reply and clear it
23	1: 路线偏离报警 1: The route is off the alarm	标志维持至报警条件解除 The flag is maintained until the alarm condition is released
24	1: 车辆 VSS 故障 1: Vehicle VSS failure	标志维持至报警条件解除 The flag is maintained until the alarm condition is released
25	1: 车辆油量异常 1: vehicle oil is abnormal	标志维持至报警条件解除 The flag is maintained until the alarm condition is released
26	1: 车辆被盗(通过车辆防盗器) 1: vehicle stolen (through vehicle anti-theft device)	标志维持至报警条件解除 The flag is maintained until the alarm condition is released
27	1: 车辆非法点火 1: illegal ignition of the vehicle	收到应答后清零 Receive a reply and clear it

28	1: 车辆非法位移 1: illegal displacement of vehicles	收到应答后清零 Receive a reply and clear it
29	1: 碰撞预警 1: collision warning	标志维持至报警条件解除 The flag is maintained until the alarm condition is released
30	1: 侧翻预警 1: rollover warning	标志维持至报警条件解除 The flag is maintained until the alarm condition is released
31	1: 非法开门报警（终端未设置区域时，不判断非法开门） 1: illegal open the door alarm (terminal does not set the area, do not judge the illegal open the door)	收到应答后清零 Receive a reply and clear it

注：发生报警和预警需立即上报位置信息

Note: alarm and early warning need to immediately report the location information

表 25 状态位定义  
Table 25 Status bit definitions

位 Bit	状态 status
0	0: ACC 关; 1: ACC 开 0: ACC off; 1: ACC on
1	0: 未定位; 1: 定位 0: not positioned; 1: positioning
2	0: 北纬; 1: 南纬 0: latitude 1: south latitude
位 Bit	状态 status
3	0: 东经; 1: 西经 0: East; 1: west
4	0: 运营状态; 1: 停运状态 0: operating status; 1: outage state
5	0: 经纬度未经保密插件加密; 1: 经纬度已经保密插件加密 0: latitude and longitude without confidentiality plug-in encryption; 1: latitude and longitude has been confidential plug-in encryption
6-7	保留 Reserved
8-9	00: 空车; 01: 半载; 10: 保留; 11: 满载 (可用于客车的空、重车及货车的空载、满载状态表示, 人工输入或传感器获取) 00: empty; 01: semi-loaded; 10: reserved; 11: full load (Can be used for passenger cars empty, heavy trucks and trucks of no-load, full load status, manual input or sensor access)
10	0: 车辆油路正常; 1: 车辆油路断开 0: vehicle oil line is normal; 1: vehicle oil circuit open
11	0: 车辆电路正常; 1: 车辆电路断开 0: vehicle circuit is normal; 1: vehicle circuit is disconnected
12	0: 车门解锁; 1: 车门加锁 0: unlock the door; 1: door lock



13	0: 门 1 关; 1: 门 1 开 (前门) 0: door 1 off; 1: door 1 open (front door)
14	0: 门 2 关; 1: 门 2 开 (中门) 0: door 2 off; 1: door 2 open (in the door)
15	0: 门 3 关; 1: 门 3 开 (后门) 0: door 3 off; 1: door 3 open (back door)
16	0: 门 4 关; 1: 门 4 开 (驾驶席门) 0: door 4 off; 1: door 4 open (driver door)
17	0: 门 5 关; 1: 门 5 开 (自定义) 0: gate 5 off; 1: door 5 open (custom)
18	0: 未使用 GPS 卫星进行定位; 1: 使用 GPS 卫星进行定位 0: GPS GPS is not used for positioning; 1: GPS satellite positioning
19	0: 未使用北斗卫星进行定位; 1: 使用北斗卫星进行定位 0: not using the Beidou satellite positioning; 1: the use of Beidou satellite positioning
20	0: 未使用 GLONASS 卫星进行定位; 1: 使用 GLONASS 卫星进行定位 0: not using GLONASS satellites; 1: positioning using GLONASS satellites
21	0: 未使用 Galileo 卫星进行定位; 1: 使用 Galileo 卫星进行定位 0: not used Galileo satellite positioning; 1: use Galileo satellite positioning
22-31	保留 Reserved

注：状态发生改变需立即上报位置信息

Note: The status changes need to be reported immediately

位置附加信息项格式见表 26。

Location The additional information item format is shown in Table 26.

表 26 位置附加信息项格式

Table 26 Location Additional Information Item Format

字段 Field	数据类型 type of data	描述及要求 Description and requirements
附加信息 ID Additional information ID	BYTE	1-255
附加信息长度 Additional information length	BYTE	
附加信息 extra information		附加信息定义见表 27 Additional information is defined in Table 27

表 27 附加信息定义

Table 27 Additional information definitions

附加信息 ID Additional information ID	附加信息长度 Additional information length	描述及要求 Description and requirements
0x30	1	BYTE, 无线通信网络信号强度 BYTE, wireless communication network signal strength
0x31	1	BYTE, GNSS 定位卫星数 BYTE, GNSS positioning satellite number

0x21	4	<p>BYTE, 温湿度传感器。前两字节温度, 单位 0.1 摄氏度; 后两字节湿度, 单位 0.1 RH%。</p> <p>BYTE, temperature and humidity sensor. The first two bytes are temperature in 0.1 degrees Celsius; the last two bytes are humidity in 0.1 RH%.</p>
0x50	2	<p>油量, 2 字节, 单模拟量</p> <p>Oil quantity, 2 bytes, single analog</p>
0x51	8	<p>8 个字节, 温度(4 路), 每路两个字节, 单位: 0.1 度 最高位表示符号, 第 4 路温度表示车内温度, 比如 0X8008 表示零下 0.8 摄氏度</p> <p>8 bytes, temperature (4 channels), 2 bytes per channel, unit: 0.1/10 degrees The highest bit indicates a negative number, and the 4th temperature indicates the temperature inside the car, for example 0X8008 means minus 0.8 degrees Celsius</p>
0x51	16	<p>16 个字节, 2 个字节一组温度, 总共 8 路温度 当平台加长到 0x51 后第二个字节长度是 0x10 就是 8 路温度。 平台需要能设置报警阈值 (平台软件实现高温和低温报警), 针对每辆车来设置</p> <p>16 bytes, 2 bytes in a set of temperature, totally of 8 temperatures When the platform is extended to 0x51, the second byte length is 0x10, which is 8 temperatures. The platform needs to be able to set alarm thresholds (high and low temperature alarms implemented by the platform software) for each vehicle</p>
0x53	1+n*8	<p>2G 基站数据: 第 1 个字节为基站个数, 后面为 n 个基站数据; 基站数据: 0-1 MCC; 2 MNC; 3-4 LAC; 5-6 CELLID; 7 信号强度</p> <p>2G base station data: the first byte is the number of base stations, followed by base station data; Base station data: 0-1 MCC; 2 MNC; 3-4 LAC; 5-6 CELLID; 7 Signal strength</p>
0x54	1+n*7	<p>WIFI 数据: 第 1 个字节 WIFI 个数, 后面为 n 个 WIFI 数据; WIFI 数据: 0-5 WIFI MAC; 6 信号强度</p> <p>WIFI data: the number of WIFI in the first byte, followed by WIFI data; WIFI data: 0-5 WIFI MAC; 6 Signal strength</p>
0x55	8	<p>载重扩展, 8 个字节, 单位: 0.1 公斤</p> <p>Load extension, 8 bytes, unit: 0.1 kg</p>
0x56	2	<p>电量扩展, 2 个字节, 单位: 百分比, 第一字节: 0-100, 第二字节备用</p> <p>Power expansion, 2 bytes, unit: percentage, first byte: 0-100, second byte reserve</p>
0x57	8	<p>状态扩展, 8 个字节, 0-1 字节为报警状态, 2-3 字节为开关状态, 4-7 字节备用</p> <p>报警状态: 0x0001 震动报警, 0x0002 防拆报警, 0x0004 开盖报警 开关状态的第二个字节的低 4 位表示外部开关状态 0006 (0110), bit0-关, bit1-开, bit2-开, bit3-开, 见表 33B</p> <p>Status extension, 8 bytes, 0-1 bytes for alarm state, 2-3 bytes for switch state, 4-7 bytes for spare Alarm status: 0x0001 vibration alarm, 0x0002 anti-dismantling alarm, 0x0004 open cover alarm The lower 4 bits of the second byte of the switch state indicate the external switch state 0006 (0110), bit0-off, bit1-on, bit2-on, bit3-on, bit3-on,</p>

		See table 33B
0x5C	0x12	<p>表示油耗传感器数据。</p> <p>字段: 累计油耗,数据类型: float, 数据长度: 4,单位: 升</p> <p>字段: 瞬时油耗,数据类型: float, 数据长度: 4,单位: 升/小时</p> <p>字段: 累计使用时间,数据类型: float,数据长度: 4,单位: 小时</p> <p>字段: 单脉冲油耗, 数据类型: float,数据长度: 4 ,单位: 毫升</p> <p>Represents fuel consumption sensor data.</p> <p>Fields: Cumulative fuel consumption, Data type: float, Data length: 4, Unit: liters</p> <p>Fields: Instantaneous fuel consumption, Data type: float, Data length: 4, Unit: l/h</p> <p>Field: Cumulative usage time, Data type: float, Data length: 4, Unit: hours</p> <p>Fields: Single Pulse Fuel Consumption, Data Type: Float, Data Length: 4, Unit: Milliliters</p>
0x5D	1+n*10	<p>3G/4G 基站数据: 第 1 个字节为基站个数, 后面为 n 个基站数据;</p> <p>基站数据: 0-1 MCC; 2 MNC;3-4 LAC; 5-8 CELLID; 9 信号强度</p> <p>3G/4G base station data: the first byte is the number of base stations, followed by base station data;</p> <p>Base station data: 0-1 MCC; 2 MNC; 3-4 LAC; 5-8 CELLID; 9. Signal strength</p>
0xAD	2	<p>外电电压, 单位 0.1V</p> <p>External voltage, unit 0.1V</p>
0x80	1	<p>瞬时速度, 单位是 KM/H</p> <p>Instantaneous velocity in KM/H</p>
0x81	2	<p>发动机转速, 单位是 RPM (转/分)</p> <p>Engine rotation speed in RPM (rpm)</p>
0x82	2	<p>OBD 电瓶电压, 单位是 0.1V</p> <p>OBD battery voltage in 0.1V</p>
0x83	1	<p>发动机负荷, %</p> <p>Engine load, %</p>
0x84	1	<p>冷却液温度, 单位℃</p> <p>Coolant temperature, in °C</p>
0x85	2	<p>瞬时油耗, 单位是 ML/H</p> <p>Instantaneous fuel consumption in ML/H</p>
0x86	1	<p>进气温度, 单位是-40℃</p> <p>The intake air temperature in -40°C</p>
0x87	2	<p>空气流量, 单位是 G/S</p> <p>Air flow, in G/S</p>
0x88	1	<p>进气歧管绝对压力, 单位是 KPA</p> <p>Intake manifold absolute pressure in KPA</p>
0x89	1	<p>节气门位置, %</p> <p>Throttle position, %</p>
0x8A	2	<p>燃油压力计量, 单位是 KPA</p> <p>Fuel pressure measurement in KPA</p>
0x8B	17	<p>VIN 码</p> <p>VIN code</p>
0x8D	2	<p>续航里程, 单位是 KM</p> <p>Cruising range, in KM</p>

0x8f	1	该行程的急加速次数 The number of sharp accelerations of the trip
0x90	1	该行程的急减速次数 The number of sharp decelerations for the trip
0x91	1	该行程的急转弯次数 The number of sharp turns for the trip
0x92	4	该行程的行驶里程,单位 0.1KM THE MILEAGE OF THIS TRIP IS IN 0.1KM
0x93	2	该行程的耗油量, 单位 ML THE FUEL CONSUMPTION OF THE TRIP, IN ML
0x94	2	该行程的平均车速, 单位 KM/H THE AVERAGE SPEED OF THE TRIP, IN KM/H
0x95	2	该行程的最大车速, 单位 KM/H THE MAXIMUM SPEED OF THE TRIP IN KM/H
0x96	1	该行程超速次数 The number of times the trip was speeded
0x97	1	该行程怠速次数 The number of idlings for this trip
0x98	4	车辆总油耗,单位 0.1L Total fuel consumption of the vehicle in 0.1L
0xE0	后续信息长度 Subsequent information length	后续自定义信息长度 Subsequent custom information length
0xE1-0xFF		自定义区域 Custom area
0xFD	2	汽车电瓶电压, 单位 0.1V。OBD 设备, 0x82 与 0xFD 相同 Car battery voltage, unit 0.1V. OBD device, 0x82 is the same as 0xFD

表 29 进出区域/路线报警附加信息消息体数据格式

Table 29 Entry and exit area / route alarm Additional information Message body data format

起始字节 Start byte	字段 Field	数据类型 type of data	描述及要求 Description and requirements
0	位置类型 Location type	BYTE	1: 圆形区域; 2: 矩形区域; 3: 多边形区域; 4: 路线 1: round area; 2: rectangular area; 3: polygon area; 4: route
1	区域或线路 ID Area or line ID	DWORD	
5	方向 direction	BYTE	0: 进; 1: 出 0: incoming; 1: out

## 报警位扩展

表33B 报警位定义扩展

位bit	定义definition	处理说明 Notes
0	1: 震动报警Vibration alarm	
1	1: 防拆报警Demolition alarm	
2	1: 开盖报警Open lid alarm	
3	1: 光感报警Light alarm	
4	1: 水温过高water temperature is too high	
5	1: 怠速idle speed	
6		
7		
8	急加速报警Sharp acceleration alarm	
9	急减速Sharp deceleration alarm	
10	急转弯Sharp turn alarm	
11	碰撞报警Collision alarm	
12		
13		
14		
15		

### 8.49 定位数据批量上传 Positioning data bulk upload

消息 ID: 0x0704。

Message ID: 0x0704.

定位数据批量上传数据格式见表 76。

Positioning data Batch upload data format is shown in Table 76.

表 76 定位数据批量上传数据格式  
Table 76 Positioning Data Batch Upload Data Format

起始字节 Start byte	字段 Field	数据类型 type of data	说明 Description
0	数据项个数 Number of data items	WORD	包含的位置汇报数据项个数, >0 Contains the number of reported data items,> 0
1	位置数据类型 Location data type	BYTE	0: 正常位置批量汇报, 1: 盲区补报 0: normal position batch report, 1: blind area report
2	位置汇报数据项 Location report data item		定义见表 77 The definition is shown in Table 77

表 77 位置汇报数据项数据格式

Table 77 Location Reporting Data Item Data Format

起始字节 Start byte	字段 Field	数据类型 type of data	说明 Description
0	位置汇报数据体长度 Location reports the length of the data body	WORD	位置汇报数据体长度, n Position report data body length, n
2	位置汇报数据体 Location Reporting Data Volume	BYTE[n]	定义见 8.12 位置信息汇报 Definitions See 8.12 Location Reporting

### 8.61 数据下行透传 Data Downstream Transmit

消息 ID: 0x8900。

Message ID: 0x8900.

数据下行透传消息体数据格式见表 91。

Data Downstream Transmit Message Body Data Format See Table 91.

表 91 数据下行透传消息体数据格式

Table 91 Data Downstream Transmit Message Body Data Format

起始字节 Start byte	字段 Field	数据类型 type of data	描述及要求 Description and requirements
0	透传消息类型 Transparent message type	BYTE	透传消息类型定义见表 93 The definition of transparent message type is shown in Table 93
1	透传消息内容 Transparent message content		

### 8.62 数据上行透传 Data uplink

消息 ID: 0x0900。

Message ID: 0x0900.

数据上行透传消息体数据格式见。

The data is uplink to the message body data format.

表 92 数据上行透传消息体数据格式

Table 92 data format of the uplink message body data

起始字节 Start byte	字段 Field	数据类型 type of data	描述及要求 Description and requirements
0	透传消息类型 Transparent message type	BYTE	透传消息类型定义见表 93 The definition of transparent message type is shown in Table 93
1	透传消息内容 Transparent message content		

表 93 透传消息类型定义表

Table 93 Transparent message type definition table

透传消息类型 Transparent message type	定义 definition	描述及要求 Description and requirements
短信指令 SMS command	0xB1	数据格式见 表 93-1 短信指令消息体格式 See table 93-1

表 93-1 短信指令消息体格式

Table 93-1 SMS command message body format

起始字节 Start byte	字段 Field	数据类型 type of data	描述及要求 Description and requirements
0	消息标识 Message ID	DWORD	下行时：由平台端生成的，取 UUID 的前 4 个字节 上行时：使用对应的下行消息中的消息标识 ID downstream: generated by the platform, take the first 4 bytes of UUID upstream: Use the message ID in the corresponding downlink message
4	指令内容 command content	STRING	参考附件《定位器指令定制 V1.2》表格内容 See attached table, Tracker Command Customization V1.2

附录 A（规范性附录）消息对照表

Appendix A (Normative Appendix) Message Comparison Table

终端通讯协议的消息对照表见表 A.1。

The message comparison table of the terminal communication protocol is shown in Table A.1.

表 A.1 消息对照表

Table A.1 Message Comparison Table

序号 Serial number	消息体名称 Message body name	消息 ID Message ID	序号 Serial number	消息体名称 Message body name	消息 ID Message ID
1	终端通用应答 Terminal general response	0x0001	24	事件设置 Event setting	0x8301
2	平台通用应答 Platform Universal Response	0x8001	25	事件报告 Event report	0x0301
3	终端心跳 Terminal heartbeat	0x0002	26	提问下发 Ask questions issued	0x8302
4	补传分包请求 Supplemental subcontract request	0x8003	27	提问应答 Ask answers	0x0302
5	终端注册 Terminal registration	0x0100	28	信息点播菜单设置 Information On Demand menu settings	0x8303
6	终端注册应答 Terminal register reply	0x8100	29	信息点播/取消	0x0303

				Information on demand / cancellation	
7	终端注销 Terminal logout	0x0003	30	信息服务 Information service	0x8304
8	终端鉴权 Terminal authentication	0x0102	31	电话回拨 Call back	0x8400
9	设置终端参数 Set the terminal parameters	0x8103	32	设置电话本 Set up phone book	0x8401
10	查询终端参数 Query the terminal parameters	0x8104	33	车辆控制 Vehicle control	0x8500
11	查询终端参数应答 Query the terminal parameter response	0x0104	34	车辆控制应答 Vehicle control response	0x0500
12	终端控制 Terminal control	0x8105	35	设置圆形区域 Set the circular area	0x8600
13	查询指定终端参数 Query the specified terminal parameters	0x8106	36	删除圆形区域 Delete the circular area	0x8601
14	查询终端属性 Query the terminal properties	0x8107	37	设置矩形区域 Set the rectangle area	0x8602
15	查询终端属性应答 Query terminal attribute response	0x0107	38	删除矩形区域 Delete the rectangle area	0x8603
16	下发终端升级包 Send the terminal upgrade package	0x8108	39	设置多边形区域 Set the polygon area	0x8604
17	终端升级结果通知 Terminal upgrade result notification	0x0108	40	删除多边形区域 Delete the polygon area	0x8605
18	位置信息汇报 Location information report	0x0200	41	设置路线 Set the route	0x8606
19	位置信息查询 Location information query	0x8201	42	删除路线 Delete route	0x8607
20	位置信息查询应答 Location information query response	0x0201	43	行驶记录仪数据采集命令 The driving recorder data acquisition command	0x8700
21	临时位置跟踪控制 Temporary location tracking control	0x8202	44	行驶记录仪数据上传 The driving recorder data is uploaded	0x0700
22	人工确认报警消息 Manual confirmation alarm message	0x8203	45	行驶记录仪参数下传命令 The driving recorder parameter is passed command	0x8701
23	文本信息下发 The text message is issued	0x8300	46	电子运单上报 Electronic shipping documents report	0x0701
47	驾驶员身份信息采集上报 The driver's identity is collected and reported	0x0702	58	存储多媒体数据上传 Store multimedia data upload	0x8803
48	上报驾驶员身份信息请求 Report the driver's identity information request	0x8702	59	录音开始命令 Tape command	0x8804
49	定位数据批量上传 Positioning data bulk upload	0x0704	60	单条存储多媒体数据检索上传命令 Single store multimedia data retrieval upload command	0x8805
50	CAN 总线数据上传 CAN bus data upload	0x0705	61	数据下行透传 The data is down through the data	0x8900



51	多媒体事件信息上传 Multimedia event information upload	0x0800	62	数据上行透传 Data uplink	0x0900
52	多媒体数据上传 Multimedia data upload	0x0801	63	数据压缩上报 Data compression report	0x0901
53	多媒体数据上传应答 Multimedia data upload response	0x8800	64	平台 RSA 公钥 Platform RSA public key	0x8A00
54	摄像头立即拍摄命令 The camera shoots the command immediately	0x8801	65	终端 RSA 公钥 Terminal RSA public key	0x0A00
55	摄像头立即拍摄命令应答 The camera immediately takes a command to answer	0x0805	66	平台下行消息保留 Platform downstream message retention	0x8F00~0x8FFF
56	存储多媒体数据检索 Storage multimedia data retrieval	0x8802	67	终端上行消息保留 End up message retention	0x0F00~0x0FFF
57	存储多媒体数据检索应答 Store multimedia data retrieval response	0x0802			