CC888 EZcarsharing Control System & T-Box Communication Protocol-V5.2

This Protocol is used for communication between car sharing control system and the platform server, command & message from server to device is download command & message, command & message from device to server is upload command & message. The command & message is transfer by TCP/IP through internet.

Suit for:

T-Box: CC-318 / CC-328 / CC-338 / CC-368 / CC-688 etc.

Tracker: CCTR-804 / 830G-4G / 800G-4G / 622G-4G etc.

Version	Date	Description
V1.0	2013-08-08	First Released
V2.0	2016-12-15	Add CRC & Touch Pad
V3.0	2017-01-06	Compatible JTT808, Add Car Rent Command
V3.1	2017-09-28	Add SMS Check / Upgrade Command
V3.2	2017-11-17	Add Download Control Command
V3.3	2018-03-05	Add Car Return Command & Bug Fixed
V3.4	2018-03-20	Add Message ID & Windows Close Command
V3.5	2018-08-29	Bug fixed & add example
V4.0	2018-11-12	Add LBS locate,BlueTooth ibeacon locate & control
V4.1	2018-12-24	Add Stress event data & door status flag
V4.2	2019-08-12	Bug fixed & add examples
V5.0	2019-10-10	Add OBD and Compatible 999gps.net platform
V5.1	2019-11-19	Add Wifi control instruction
V5.2	2020-01-04	Bug fixed & add 0x8F05 command

Notes:

The following message & command words and symbols all are English upper case letters, blank and other symbols are illegal.

1. Message Data Frame Format

Each message consists of a message header and a message body, as follows:

Marker	Message header	Message body	Check code	Marker

Marker:

The marker is represented by 0x7e. If the check code, message header, and message body have 0x7e, the escaping process is performed. The escaping rules are defined as follows:

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

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

The escaping process is as follows:

When sending a message: message encapsulation ------> calculate and fill in the check code ------> escaping;

When receiving a message: escaping restore ------> verify check code ------> parse the message.

Example:

The content of the sent data packet is: 0x30 0x7e 0x08 0x7d 0x55

Then the contents of the encapsulated data packet is: 0x7e 0x30 0x7d 0x02 0x08 0x7d 0x01 0x55 0x7e

Message header content as follow:

Bytes	Field	Data type	Description
2	Message ID	WORD	The “Message ID” details are as follow.
2	Message body attribute	WORD	The “Message Body Attribute” details are as follow.
6	Device ID	BCD[6]	Up to 12 digits, for example: 081400000089
2	Message serial number	WORD	Cycle accumulation from 0 in the order of transmission

The message body attribute detail is as follows:

15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Reserved		Fixed with 0000				total length of message body									

Check code:

The check code refers: the first byte of the message header XOR the next byte, and the result XOR the next byte, and so on, the final result of XOR the the last byte of the message body before the check code is the final check code, occupies one byte.

Message example:

7E 83 20 00 01 08 14 00 00 00 89 00 02 FF CA 7E

Marker: 7E

Message Header: 83 20 00 01 08 14 00 00 00 89 00 02

83 20 is message ID, 00 01 is message body length, this example is 1 byte, 08 14 00 00 00 89 is device ID, Message serial number: 00 02.

Message Body: FF, length is: 1 Byte

check code: CA （0x83^0x20^0x00^0x01^0x08^0x14^0x00^0x00^0x00^0x89^0x00^0x02^0xFF）

Marker: 7E

Upload: device send message to platform server

Download: platform server send message to device

The following description is Message body corresponding Message ID

2. Device upload identity authentication message ID:0x0102

0x0102 Message body is as follow:

Startbyte	Field	Data type	Description
0	Authentication code	DWORD	a fixed value agreed with the platform
4	Device model	DWORD	Device model number
8	Gasoline or electric car	BYTE	Highest bit 1:gasoline,Highest bit 0:electric
9	SIM card CCID	BYTE[20]	
29	Length of device firmware version	1 BYTE	
30	Current firmware version	BYTE[N]	

Example:

Device uploads a complete packet (Blue with underline is message body):

7E**0102**003E08140000008900010000255C617072613053839383630343139313631374331353330353531204352525634473 12E312E305420323031382D30372D32372031393A32353A3431 4E7E

0x0102 Message body example description:

Startbyte	Field	Data type	Data (hexadecimal)	Description
0	Authentication code	DWORD	000255C6	
4	Device model	DWORD	17072613	
8	Gasoline or electric car	BYTE	05	electric
9	SIM card CCID	BYTE[20]	38393836303431393136 31374331353330353531	CCID:898604191617 C1530551
29	Length of device firmware version	1 BYTE	20	
30	Current firmware version	BYTE[N]	435252563447312E312E 305420323031382D3037 2D32372031393A32353 A3431	CRRV4G1.1.0T 2018-07-27 19:25:41

3. Platform replay device identity authentication message ID:0x8102

0x8102 Message body is as follow:

Startbyte	Field	Data type	Description
0	Reply serial number	WORD	Corresponding device message serial number
2	Reply message ID	WORD	Message ID:0x0102
4	Result	BYTE	0: Success; 1: Fail; 2: message error
5	Platform server time	BCD[6]	YY-MM-DD-hh-mm-ss

Example:

Platform download a complete packet (Blue with underline is message body):

7E**8102**000B08140000089403D000101020018081622132 4717E

0x8102 Message body example description:

Startbyte	Field	Data type	Data (hexadecimal)	Description
0	Reply serial number	WORD	0001	Corresponding device message serial number
2	Reply message ID	WORD	0102	Message ID:0x0102
4	Result	BYTE	00	0: Success; 1: Fail; 2: message error
5	Platform server time	BCD[6]	180816221324	YY-MM-DD-hh-mm-ss

4. Upload location information to platform message ID:0x0200

When the car engine is turned on, the default upload interval is 10 or 20 seconds, if the vehicle status changed, the device will upload information immediately with message ID 0x0200, such as door open, engine started, battery low etc.

0x0200 Message body is as follow:

Startbyte	Field	Data type	Description
0	Alarm flag	DWORD	Details are as follow:
4	Vehicle Status	DWORD	Detail are as follow:
8	Latitude	DWORD	Unit:10^{-6} Degree, Accuracy is $1x10^{-6}$ Degree.
12	Longitude	DWORD	Unit:10^{-6} Degree, Accuracy is $1x10^{-6}$ Degree.
16	altitude	WORD	Height above sea level, Unit is meters (m).
18	Speed	WORD	OBD speed or GPS speed, Unit is **0.1km/hour**
20	Direction	WORD	0 to 359, due north is 0, clockwise
22	Time	BCD[6]	YY-MM-DD-hh-mm-ss
28	Remaining battery & Remaining mileage	BYTE[4]	First Byte[0] is percent of the remaining battery,from 00to 100 The 2~4 Byte are remaining milage, unit is **hundred meters**. For example: Byte[1] = 0x00, Byte[2] = 0x01, Byte[3] = 0x02, means remaining mileage is **0x**000**102** hundred meters = **10.2** km.
32	Total mileage	DWORD	Unit is **hundred meters**

36	Battery Voltage	WORD	Unit is 0.1V
38	Area ID	DWORD	If in the defined area, then report the area ID, if not in defined area, then is 0x00.
42	GPRS signal	BYTE	GPRS signal strength, 1byte
43	Reserved	BYTE[3]	For future used.

Alarm flag bit definition, if the flag bit is 1, it means the alarm is triggered, if the flag bit is 0, it means no alarm, reserved bit is 0.

Bit	Definition	Device Operation
0	1: SOS, SOS button is pressed	Reset flag after received reply
1	1: Over speed alarm	Flag keep until alarm released
2	Reserved	
3	Reserved	
4	1: GPS module fault	Flag keep until alarm released
5	1: GPS antenna no connection or break	Flag keep until alarm released
6	1: GPS antenna Short circuit	Flag keep until alarm released
7	1: Device power supply voltage low	Flag keep until alarm released
8	1: Device power supply down	Flag keep until alarm released
9	Reserved	
10	Reserved	
11	Reserved	
12	Reserved	
13	Reserved	
14	Reserved	
15	1: OBD module fault	Flag keep until alarm released
16	Reserved	
17	Reserved	
18	Reserved	
19	Reserved	
20	Reserved	
21	Reserved	
22	Reserved	
23	Reserved	
24	Reserved	
25	1: Vehicle oil level abnormal	Flag keep until alarm released
26	1: Vehicle stolen alarm	Flag keep until alarm released
27	1: Vehicle engine start alarm	Reset flag after received reply
28	1: Vehicle move alarm	Reset flag after received reply
29	1: Collision early warning	Flag keep until alarm released
30	Reserved	
31	1: Door open alarm	Reset flag after received reply

Note:

1. When the OBD module fault, the above alarm flag bit 1 is invalid.

2. When the alarm is triggered, device will upload information immediately.

Vehicle Status bit definition

Bit	Status Description
0	0: ACC off; 1: ACC on
1	0: No located; 1: Located
2	0: North latitude; 1: South latitude
3	0: East longitude; 1: West longitude
4	0: Vehicle can be rent; 1: Vehicle is rent by client
5	0: Longitude & latitude unencrypted ; 1: Longitude & latitude encrypted
6	0: Not charged; 1: Charging
7	0: Immobilizer relay active; 1:Immobilizer relay not active (engine can be started)
8~9	00: Vehicle Empty; 01: Half load; 10: Not reserved; 11: full load
10	0: Vehicle oil connected; 1: Vehicle oil disconnected
11	0: Vehicle circuit connected; 1: Vehicle circuit disconnected
12	0: Door unlocked; 1: Door locked
13	0: Door 1 closed; 1: Door 1 opened (Any door opened then door 1 flag opened)
14	0: Door 2 closed; 1: Door 2 opened (Middle door)
15	0: Door 3 closed; 1: Door 3 opened (Back door)
16	0: Door 4 closed; 1: Door 4 opened (Driver door)
17	0: Door 5 closed; 1: Door 5 opened (Car trunk)
18	0: Not used GPS locate; 1: Used GPS locate
19	0: Not used BEIDOU locate; 1: Used BEIDOU locate
20	0: Not used GLONASS locate; 1: Used GLONASS locate
21	0: Not used Galileo locate; 1: Used Galileo locate
22	0: Brake is OFF; 1: Brake is ON
23	0: No order or in normal rent order; 1: Car rental timeout
24	0: Clients lock door(App/Bluetooth/NFC/Password/SMS etc) 1: Clients unlock door (App/Bluetooth/NFC/Password/SMS etc)
25	0: Car is rent less than 24 hours; 1: Car rent is over 24 hours (only send one time)
26	0: Left turn light OFF; 1: Left turn light ON
27	0: Right turn light OFF; 1: Right turn light ON
28	0: Car high beam OFF; 1: Car high beam light ON
29	0: Car low beam light OFF; 1: Car low beam light ON
30	0: Location light OFF; 1: Location light ON
31	0: Windows closed; 1: Windows not closed(Only suit some cars)

Platform will reply with general reply message ID 0x8001 (Description as follow).

Example:

Device uploads a complete packet (Blue with underline is message body):

7E**0200**002E08140000089000200000000000000002015933D206CDB8C00094000A00001808162213236200504000008008007700000000018000000AC7E

0x0200 Message body example description:

Startbyte	Field	Data type	Data (hexadecimal)	Description
0	Alarm flag	DWORD	00000000	
4	Vehicle Status	DWORD	00000002	Bit 0 = 0; Bit 1 = 1
8	Latitude	DWORD	015933D2	22.623186°
12	Longitude	DWORD	06CDB8C0	114.145472°
16	altitude	WORD	0094	Height is 148 m.

18	Speed	WORD	000A	OBD speed or GPS speed, Unit is **0.1km/hour**
20	Direction	WORD	0000	0 to 359, due north is 0, clockwise
22	Time	BCD[6]	180816221323	YY-MM-DD-hh-mm-ss
28	Remaining battery & Remaining mileage	BYTE[4]	62 005040	Soc is :98% Remaining milage: 504.0km
32	Total mileage	DWORD	00008008	Total mileage is 32776km
36	Battery Voltage	WORD	0077	11.9V
38	Area ID	DWORD	00000000	
42	GPRS signal	BYTE	18	CSQ:24
43	Reserved	BYTE[3]	000000	For future used.

5. 0x0300 Upload Stress Event Information

The stress event refers to the data that needs to be reported to the platform in some cases or the platform needs priority processing. For example, the vehicle detects the Bluetooth beacon after entering the underground parking, and the device reports the platform in advance, and can immediately determine when the customer returns the vehicle. also when the driving behavior is triggered, the platform can prioritize to synchronize the trigger time and position.

Stress Event Message Body

Time BCD[6]	ID	Corresponding message content

Platform reply device with general reply message ID: 0x8001.

Now stress event including: LBS locate, Blue Tooth beacon locate, driving behavior alarm etc, the other event can be added in the future.

Event ID Description:

Event ID	Item	Additional message body length	Description
0x01	LBS Locate	1+n*11	Message body refer the following LBS locate expand information definition.
0x02	Bluetooth Beacon	1+n*14	Message body refer the following Bluetooth Beacon expand information definition, n can be 0.
0x03	Driving Behavior	20	Message body refer the following Driving Behavior expand information definition.

0x04	Wifi Locate		

5.1 0x01 LBS locate (Mobile Phone Locate by Base Station)

LBS locate information is sent to platform when no GPS signal.

LBS Message Body Description:

Start Byte	Fields	Data Type	Description
0	Event ID	BYTE	Event ID
1	LBS Numbers	BYTE	Total Numbers of Base Station
2	MCC	WORD	MCC
4	MNC	WORD	MNC
6	LAC	WORD	Base Station LAC
8	CELL ID	DWORD	Base Station CID
12	Signal Strength	BYTE	Base Station Signal Strength
13	...	...	Next LBS Data

Exampe message of LBS: **(Blue with underline is expand information)**

7E0300003408140000008900021808162213240104 01CC0000248A00000E621C 01CC0000248A0 00010881 101CC0000248A00000E610F 01CC0000248A00000E1519 2D7E

LBS locate Message Body Example Description:

0104 01CC0000248A00000E621C 01CC0000248A00010881 101CC0000248A00000E610F 01 CC0000248A00000E1519

Start Byte	Fields	Data Type	Data (HEX)	Description
0	Event ID	BYTE	01	LBS locate
1	LBS Numbers	BYTE	04	4 Base Stations locate information
2	MCC	WORD	01CC	Base Station 1 MCC: 460
4	MNC	WORD	0000	Base Station 1 MNC: 00
6	LAC	WORD	248A	Base Station 1 LAC: 9354
8	CELL ID	DWORD	00000E62	Base Station 1 CID: 3682
12	Signal Strength	BYTE	1C	Base Station 1 Strength: 28
13	MCC	WORD	01CC	Base Station 2 MCC: 460
15	MNC	WORD	0000	Base Station 2 MNC: 00
...	...	...	...	...

5.2 0x02 Blue Tooth Beacon Upload

The Bluetooth beacon message is uploaded immediately when the blue tooth beacon is detected, and is uploaded immediately when the beacon signal is lost. The beacon signal loss is that the number of the uploaded data packet beacon is 0, and there is no subsequent content.

The Blue Tooth Beacon Message Body Description:

Start Byte	Fields	Data Type	Description
0	Event ID	BYTE	Event ID
1	Beacon Numbers	BYTE	Total Numbers of Blue Tooth Beacon (When blue tooth beacon lost it is 0)
2	Beacon Name	BYTE[6]	Blue Tooth Beacon Name (First 6 bytes)
8	Bluetooth MAC	BYTE[6]	Blue Tooth Beacon MAC Address
14	Signal Strength	BYTE	Blue Tooth Beacon Signal Strength
15	Battery Voltage	BYTE	Blue Tooth Beacon Battery Power (Percentage)
16	...	...	Next Blue Tooth Beacon Data

Exampe message of Blue Tooth Beacon: **(Blue with underline is expand information)**

7E**0300**002408140000008900021808162213240202024455A5F5842C72BD1F3562E4864244555A5F5842C52C663B41045560FD7E

Blue Tooth Beacon Message Body Example Description:

0202024455A5F5842C72BD1F3562E486424455A5F5842C52C663B41045560

Start Byte	Fields	Data Type	Data(HEX)	Description
0	Event ID	BYTE	02	Blue Tooth Beacon
1	Beacon Numbers	BYTE	02	2 Blue Tooth Beacons
2	Beacon Name	BYTE[6]	24455A5F5842	No 1 Blue Tooth Beacon Name(First 6 bytes): $EZ_XB
8	Bluetooth MAC	BYTE[6]	C72BD1F3562E	No1 Blue Tooth Beacon MAC Address: C7:2B:D1:F3:56:2E
14	Signal Strength	BYTE	48	No 1 Blue Tooth Beacon Signal Strength: -72dB
15	Battery Voltage	BYTE	64	No1 Blue Tooth Beacon Battery Power Percentage : 100%
16	Beacon Name	BYTE[6]	24455A5F5842	No 2 Blue Tooth Beacon Name(First 6 bytes): $EZ_XB
22	Bluetooth MAC	BYTE[6]	C52C663B4104	No2 Blue Tooth Beacon MAC Address: C5:2C:66:3B:41:04
28	...	...	...	...

5.3 0x03 Driving Behavior Upload

When the acceleration in the driving is greater than the threshold, the driving behavior will be uploaded to the server, and the uploading interval is 2 seconds during the period greater than the threshold.

The Driving Behavior Message Body Description:

Start Byte	Fields	Data Type	Description
0	Event ID	BYTE	Event ID
1	Alarm Type	BYTE	0x01 Harsh acceleration, 0x02 Harsh brake, 0x04 Harsh turns Left, 0x08 Harsh turn Right, 0x10 Collision, 0x20 Turn Over
2	Latitude	DWORD	Unit:10^{-6} Degree, Accuracy is $1x10^{-6}$ Degree.
6	Longitude	DWORD	Unit:10^{-6} Degree, Accuracy is $1x10^{-6}$ Degree.
10	X-direction acceleration	WORD	The value of the accelerometer relative to the static value, the unit is G/1000, the int type value (the highest digit indicates the positive or negative)
12	Y-direction acceleration	WORD	
14	Z-direction acceleration	WORD	
16	Throttle status	BYTE	0 is not step, 1 is step on
17	Throttle stroke	BYTE	Throttle stroke percentage from 0 to 100
18	Brake status	BYTE	0 is not step, 1 is step on
19	Brake stroke	BYTE	Brake stroke percentage from 0 to 100
20	Gear position	BYTE	0x44: Gear D,0x4E:Gear N,0x50:Gear P, 0x52:Gear R, 0xFF: No gear position detected

Exampe message of Driving Behavior: **(Blue with underline is expand information)**

7E**0300**001B0814000000890002180816221324030202015933D206CDB8C0008C8185008600000130 44EC7E

Driving Behavior Message Body Example Description:

030202015933D206CDB8C0008C818500860130000044

Start Byte	Fields	Data Type	Data(HEX)	Description
0	Event ID	BYTE	03	Driving behavior alarm report
1	Alarm Type	BYTE	02	Harsh brake
2	Latitude	DWORD	015933D2	22.623186°
6	Longitude	DWORD	06CDB8C0	114.145472°
10	X-direction acceleration	WORD	008C	X-direction acceleration is 140 (0.140g)
12	Y-direction acceleration	WORD	8185	Y-direction acceleration is -389 (-0.389g)
14	Z-direction acceleration	WORD	0086	Z-direction acceleration is 134 (0.134g)

16	Throttle status	BYTE	00	Throttle is not step
17	Throttle stroke	BYTE	00	Throttle stroke percentage is 0
18	Brake status	BYTE	01	Brake is step on
19	Brake stroke	BYTE	30	Brake stroke percentage is 48% (0x30)
20	Gear position	BYTE	44	Gear Position is D

If there is no GPS signal when uploading the event, the LBS positioning data will be be supplemented to the server.

6. Platform general reply device message ID:0x8001

0x8001 Message body is as follow:

Startbyte	Field	Data type	Description
0	Reply serial number	WORD	Corresponding device message serial number
2	Reply message ID	WORD	Corresponding device send message ID
4	Result	BYTE	0: Success; 1: Fail; 2: message error

Example:

Platform download a complete packet (Blue with underline is message body):

7E**8001**000508140000008940550002020000047E

0x8001 Message body Example Description:

Startbyte	Field	Data type	Data (hexadecimal)	Description
0	Reply serial number	WORD	0002	Corresponding device message serial number
2	Reply message ID	WORD	0200	
4	Result	BYTE	00	Success

7. Device general reply platform message ID:0x0001

0x0001 Message body is as follow:

Startbyte	Field	Data type	Description
0	Reply serial number	WORD	Corresponding platform message serial number
2	Reply message ID	WORD	Corresponding platform send message ID
4	Result	BYTE	0: Success; 1: Fail; 2: message error

Example:

Device upload a complete packet (Blue with underline is message body):

7E**0001**00050814000000890403001D83230002B7E

0x0001 Message body Example Description:

Startbyte	Field	Data type	Data (hexadecimal)	Description
0	Reply serial number	WORD	001D	Corresponding device message serial number
2	Reply message ID	WORD	8323	
4	Result	BYTE	00	Success

8. Platform request device status message ID:0x8320

0x8320 Message body is empty, after receive the message, the device will check vehicle status information, and reply platform with message ID 0x0320, the message body of message ID 0x0320 is same with the message body of message ID 0x0200.

Example:

Platform download a complete packet :

7E**8320**0000081400000089040537 7E

Note: Message body is empty.

9. Platform download to find car message ID:0x8322

0x8322 Message body is as follow:

Startbyte	Field	Data type	Description
0	Finding car	BYTE	01: Horn beep 2-3 times, 02: Flashing light 2-3 times, 03: Horn beep & flashing light together

Device reply platform with general replay message ID 0x0001.

Example:

Platform download a complete packet (Blue with underline is message body):

7E**8322**000108140000008900 1E03287E

0x8322 Message body Example Description:

Startbyte	Field	Data type	Data (hexadecimal)	Description
0	Finding car	BYTE	03	03: Horn beep & flashing light together

10. Platform download to lock unlock / trunk release / remote start engine / remote turn off engine: Message ID:0x8323

0x8323 Message body is as follow:

Startbyte	Field	Data type	Description
0	Command Type	BYTE	01: unlock door; 06: lock door 21: trunk release 22: trunk close 55: remote start car engine 56: remote turn off engine

Device reply platform with general reply message ID 0x0001, after receive message, device will lock or unlock door, and then upload the operation result with message ID 0x0323, the message body of message ID 0x0323 is same with message body of message ID 0x0001.

After receive lock message(06), device will check current status, if the car engine is running, the device only lock the door. if the car engine is off, then lock the door, and disable the engine start. If the device receive unlock message(01), the device will unlock door and enable the engine start.

Example:

Platform download a complete packet (Blue with underline is message body):

7E**8323**0001081400000089001D062F7E

0x8323 Message body Example Description:

Startbyte	Field	Data type	Data (hexadecimal)	Description
0	Lock & unlock	BYTE	06	06: lock door

11. Device upload lock/trunk/start result message ID:0x0323

This message ID 0x0323 is the device send door lock unlock / truck release / remote start engine result to platform, platform will reply message ID 0x0323 with general reply message ID 0x8001.

0x0323 Message body is as follow:

Startbyte	Field	Data type	Description
0	Reply serial number	WORD	Corresponding platform message serial number
2	Reply message ID	WORD	Corresponding platform send message ID
4	Result	BYTE	00: Success; Others not 00: Fail

Example:

Device upload a complete packet (Blue with underline is message body):

7E**0323**0005081400000089002B51FA832300907E

0x0323 Message body Example Description:

Startbyte	Field	Data type	Data (hexadecimal)	Description
0	Reply serial number	WORD	51FA	Corresponding device message serial number

2	Reply message ID	WORD	8323	
4	Result	BYTE	00	Success

12. Platform download to set device parameter message ID: 0x8329

0x8329 Message body is as follow:

Startbyte	Field	Data type	Description
0	Total parameter number	BYTE	
1	Parameter list		Description as follow

Device parameter data format:

Field	Data type	Description
Parameter ID	DWORD	Parameter ID description as follow:
Parameter length	BYTE	
Parameter data		If the parameter has multi-valued, then the message have multi-valued parameter with same ID,for example: center phone number.

Parameter ID list:

Parameter ID	Data type	Description
0x0001	DWORD	Device heart beat uploading time interval, unit is seconds.
0x0013	STRING	Main server IP
0x0017	STRING	Backup server IP
0x0018	DWORD	TCP port
0x0027	DWORD	Uploading time interval when sleep, unit is seconds.
0x0029	DWORD	Uploading time interval when driving, unit is seconds.
0x002C	DWORD	Uploading distance interval when driving, unit is meters
0x002E	DWORD	Uploading distance interval when sleep, unit is meters
0x0000F400	STRING	Wifi Hot Pod Name, ASCII Code, 8-16 Bytes
0x0000F401	STRING	Wifi Hot Pod Password, ASCII Code, 8-16 Bytes
0x0000F402	BYTE	Enable or Disable WiFi Hot Pod, 0:Disable, 1:Enable
0x0000F403	BYTE	ON/OFF WiFi Hot Pod, 0:OFF,1:ON
0x00FF0101	DWORD	
0x00FF0102	BYTE	
0x00FF0103	DWORD	
0x00FF0104	DWORD	Upload time interval when car is rent, unit is seconds
0x00FF0105	DWORD	Server set device total mileage, unit is km

Device will reply with general message ID 0x0001

Example:

Platform download a complete packet (Blue with underline is message body):

7E**8329**000A08140000008900020100000001040000001E2D7E

0x8329 Message body Example Description:

Startbyte	Field	Data type	Data (hexadecimal)	Description
0	Total parameter number	BYTE	01	1 parameter
1	Parameter ID	DWORD	00000001	Device heart beat uploading time interval, unit is seconds.
5	Parameter length	BYTE	04	
9	Parameter data		0000001E	Heart beat interval 30s

13. Platform download to turn on/off power supply message ID:0x8325

This command is used for some special car to enable or disable engine start, or turn on off some power supply.

0x8325 Message body is as follow:

Startbyte	Field	Data type	Description
0	Enable & Disable car engine	BYTE	01: Turn ON Power Supply / Enable engine start 02: Turn Off Power Supply or Car Engine or Disable Engine Start (when speed is 0), if speed is not 0, device will turn off engine & disable engine start after speed change to 0.

Example:

Platform download a complete packet (Blue with underline is message body):

7E**8325**0001081400000089003001037E

0x8325 Message body Example Description:

Startbyte	Field	Data type	Data (hexadecimal)	Description
0	Enable & Disable	BYTE	01	01: Enable car engine

7E**8325**0001081400000089003102017E

0x8325 Message body Example Description:

Startbyte	Field	Data type	Data (hexadecimal)	Description
0	Enable & Disable	BYTE	02	02: Turn off engine & disable engine start

If enable engine start, push start button can start car engine, if disable engine start, push start button can not start car engine, and the vehicle power supply is turned off.

When the vehicle is moving, the disable engine start command will not be executed, after the vehicle stop moving , the command will be executed immediately.

Device will reply result to platform with message ID 0x0325

0x0325 Message body is as follow:

Startbyte	Fields	Data type	Description
0	Reply serial number	WORD	Corresponding platform message serial number
2	Reply message ID	WORD	Corresponding platform message ID: 0x8325
4	Result	BYTE	00: Operation success 01: Operation fail (Vehicle is moving) 02: Disable engine start after turn off engine 03: Reserved

Example:

Device upload a complete packet (Blue with underline is message body):

7E**0325**0005081400000089000600318325002 77E

0x0325 Message body Example Description:

Startbyte	Field	Data type	Data (hexadecimal)	Description
0	Reply serial number	WORD	0031	Corresponding device message serial number
2	Reply message ID	WORD	8325	
4	Result	BYTE	00	Success

14. Platform download to upgrade device firmware message ID:0x8330

0x8330 Message body is as follow:

Startbyte	Fields	Data type	Description
0	IP address length	BYTE	Upgrading server IP address length
1	IP address	Char[N]	Upgrading server IP address
1+N	Server port length	BYTE	Upgrading server port length
1+N+1	Server port	Char[M]	Upgrading server port

Example:

Platform download a complete packet (Blue with underline is message body):

7E**8330**0012081400000089F00F0C3131382E32342E31372E39360438303136D57E

0x8330 Message body Example Description:

Startbyte	Field	Data type	Data (hexadecimal)	Description
0	IP address length	BYTE	0C	

1	IP address	Char [N]	3131382E32342E31372E3936	IP:118.24.17.96
1+N	Server port length	BYTE	04	
1+N+1	Server port	Char [M]	38303136	PORT:8016

Only after ACC & ON are turned off, the upgrade command can be executed, device will reply platform with message ID 0x0330, message body of message ID 0x0330 is same with the message body of general message ID 0x0001.

0x0330 Message body is as follow:

Startbyte	Field	Data type	Description
0	Reply serial number	WORD	Corresponding platform message serial number
2	Reply message ID	WORD	Corresponding platform send message ID
4	Result	BYTE	0: Confirm start upgrade; 1: Fail;

Example:

Device upload a complete packet (Blue with underline is message body):

7E**0330**0005081400000089FFFFF00F833000EF7E

0x0330 Message body Example Description:

Startbyte	Field	Data type	Data (hexadecimal)	Description
0	Reply serial number	WORD	F00F	
2	Reply message ID	WORD	8330	Corresponding platform send message ID
4	Result	BYTE	00	Confirm start upgrade

After the device upgrade finished, the device will send upgrade result to platform server with message ID 0x0331, the message body of message ID 0x0331 is as follow:

0x0331 Message body is as follow:

Startbyte	Field	Data type	Description
0	Result	BYTE	0: Upgrade success; 1: Upgrade fail

Platform will reply device with general reply message ID 0x8001.

Example:

Device upload a complete packet (Blue with underline is message body):

7E**0331**0001081400000089FFFF00A67E

0x0331 Message body Example Description:

Startbyte	Field	Data type	Data (hexadecimal)	Description
0	Result	BYTE	00	Success

15. Platform download to return car message ID:0x8410

0x8410 Message body is as follow:

Startbyte	Field	Data type	Description
0	Touch pad new password	BYTE[N]	Touch pad new password

The new touch pad password will replace the old password, so the password can not be used any more, the new password can be used as the next car rental users touch pad password when car rent platform create a new car rental order, every time return the car, the password will change, If no touch pad, then the message body can is empty.

Example:

Platform download a complete packet (Blue with underline is message body):

7E**8410**000608140000008969D2020009060702B47E

0x8410 Message body Example Description:

Startbyte	Field	Data type	Data (hexadecimal)	Description
0	New password	BYTE	020009060702	Password: 209672

Device will reply platform 0x8410 with general reply message ID 0x0001. then the device execute return car command, check the car status first and lock the door etc.

The device will send return car result to platform with message ID 0x0410.

0x0410 Message body is as follow:

Startbyte	Fields	Data type	Description
0	Reply serial number	WORD	Corresponding platform message serial number
2	Reply message ID	WORD	Corresponding platform message ID:0x8410
4	Result	BYTE	00: Success, the other value are fail. 01: Door opened 02: Engine is running 03: Light is ON 04: Brake is OFF 05: Car key is unplugged 06: Window is not closed 07: Trunk is released 09: Other reason

Platform will reply device 0x0410 message with general reply message ID 0x8001.

Note: light / brake / car key status need can be get from the vehicle

When device received return car command, device will lock door & close window first, it is not necessary to send lock door command again before return car operation.

Example:

Device upload a complete packet (Blue with underline is message body):

7E**0410**000508140000008900096 9D2841000A27E

0x0410 Message body Example Description:

Startbyte	Field	Data type	Data (hexadecimal)	Description
0	Reply serial number	WORD	69D2	Corresponding device message serial number
2	Reply message ID	WORD	8410	
4	Result	BYTE	00	Success

16. Platform download to set touch pad password message ID:0x8420

0x8420 Message body is as follow:

Startbyte	Field	Data type	Description
0	Touch pad password	BYTE	Password can be 4-8 digit numbers.

For example: if the password is 123456, then the data should be 010203040506, 6 bytes.

Device will reply platform with general reply message ID 0x0001.

Example:

Platform download a complete packet (Blue with underline is message body):

7E**8420**000608140000008969D3020009060702857E

0x8420 Message body Example Description:

Startbyte	Field	Data type	Data (hexadecimal)	Description
0	New password	BYTE	020009060702	Password: 209672

17. Device upload touch pad password lock unlock message ID:0x0421

0x0421 Message body is as follow:

Startbyte	Field	Data type	Description
0	Lock unlock door type	BYTE	00: touch pad password unlock door 01: touch pad password lock door 10: touch pad super password unlock door 11: touch pad super password lock door

Platform will reply device with general reply message ID 0x8001.

if the vehicle is locked / locked by touch pad password, the device will send this message (0x0421) until the platform reply with message ID 0x8001.

Example:

Device upload a complete packet (Blue with underline is message body):

7E**0421**000108140000008969D4**00**0C7E

0x0421 Message body Example Description:

Startbyte	Field	Data type	Data (hexadecimal)	Description
0	Password lock /unlock	BYTE	00	Unlock with password

18. Device upload heart beat to platform message ID:0x0506

When vehicle engine is OFF, the device will stop uploading location information to platform server, it will send heart beat message to platform server every 2 minutes, the heart beat message ID is 0x0506, the message body of heart beat message is empty.

The platform will reply device with general replay message ID 0x8001.

Example:

Device upload a complete packet :

7E**0506**000008140000008969D52A7E

0x0506 Message body is empty.

19. Platform download to open/close windows message ID:0x8450

Some vehicles have windows auto open or close system, for these vehicle platform can send command message to device to close the windows before return the vehicle.

0x8450 Message body is as follow:

Startbyte	Field	Data type	Description
1	open or close	BYTE	01: Close windows; 02: Open windows

Device will reply platform with general replay message ID 0x0001.

Example:

Platform download a complete packet (Blue with underline is message body):

7E**8450**000108140000008969D6**01**FE7E

0x8450 Message body Example Description:

Startbyte	Field	Data type	Data (hexadecimal)	Description
0	open or close	BYTE	01	Close windows

After reply the message, the device will execute the open or close windows command and then send the result to platform with the message ID 0x0450.

0x0450 Message body is as follow:

Startbyte	Fields	Data type	Description
0	Reply serial number	WORD	Corresponding platform message serial number
2	Reply message ID	WORD	Corresponding platform message ID
4	Result	BYTE	00: Success; 01: Fail.

The platform will reply device 0x0450 message with general replay message ID 0x8001.

Example:

Device upload a complete packet (Blue with underline is message body):

7E**0450**000508140000089FFFF**69D6845000**AF7E

0x0450 Message body Example Description:

Startbyte	Field	Data type	Data (hexadecimal)	Description
0	Reply serial number	WORD	69D6	
2	Reply message ID	WORD	8450	
4	Result	BYTE	00	Success

20. Platform download to set touch pad super password message ID:0x8419

Super touch pad password is used for car owner or car maintain persons, this super touch pad password is different with the normal car rent using touch pad password, it will not changed whether the car is rented or returned, unless use this command to reset by app or server.

0x8419 Message body is as follow:

Startbyte	Field	Data type	Description
1	Password	BYTE	New super touch pad password, password should be 8 digits.

For example password is 12345678, then the data should be: 0102030405060708.

Example:

Platform download a complete packet (Blue with underline is message body):

7E**8419**000808140000008969D30200090607020702B77E

0x8419 Message body Example Description:

Startbyte	Field	Data type	Data (hexadecimal)	Description
0	Password	BYTE	0200090607020702	Password:20967272

Device will reply platform with general replay message ID 0x0419.

0x0419 Message body is as follow:

Startbyte	Fields	Data type	Description
0	Reply serial number	WORD	Corresponding platform message serial number
2	Reply message ID	WORD	Corresponding platform message ID
4	Result	BYTE	00: Success; 01: Fail, 02:information error.

Example:

Device upload a complete packet (Blue with underline is message body):

7E**0419**000508140000008904030001D8419000A7E

0x0419 Message body Example Description:

Startbyte	Field	Data type	Data (hexadecimal)	Description
0	Reply serial number	WORD	001D	Reply SN:001D
2	Reply message ID	WORD	8419	Reply message ID
4	Result	BYTE	00	Success

21. Platform download to check device parameters message ID:0x8104

0x8104 Message body is empty, after receive the message, the device will check device information and reply platform with message ID 0x0104.

Example:

Platform download a complete packet :

7E**8104**000108140000008937F5D37E

Note: Message body is empty.

The device will reply platform with message ID 0x0104.

0x0104 Message body is as follow:

Startbyte	Fields	Data type	Description
0	Reply serial number	WORD	Corresponding platform message serial number
2	Reply message ID	WORD	Corresponding platform message ID
4	Parameter Quantity	BYTE	
5	Parameter Definition		Description as follow:

Parameter Definition:

Fields	Data type	Description
Parameter ID	DWORD	Parameter ID Description as follow
Parameter Length	BYTE	
Parameter data		If it is a multi-valued parameter, multiple parameter items use the same ID is OK, such as the call center telephone number.

Parameter Data Description:

Parameter ID	Alias Name	R/W	Data type	Description
0x0000F010	IP4	R	STRING	Server IP address
0x0000F040	VIN	R	STRING	Vehicle VIN
0x0000F041	ENGINE_ID	R	STRING	Engine number
0x0000F042	ENDURANCE	R	DWORD	Recharge mileage, unit is 0.1km
0x0000F043	SOC	R	DWORD	Electronic car SOC
0x0000F044		R	DWORD	Remaining oil percentage, unit is 1%
0x0000F045		R	DWORD	Remaining oil, unit is 0.1L
0x0000F0D0		R	STRING	Device manufacture date
0x0000F0D1		R	STRING	Device hardware version
0x0000F0D2		R	STRING	Device software version
0x0000F0D3		R	STRING	Device software firmware compilation time
0x0000F0E0		R	STRING	OBD module manufacture date
0x0000F0E1		R	STRING	OBD hardware version
0x0000F0E2		R	STRING	OBD Software version
0x0000F0E3		R	STRING	OBD software firmware compilation time

0x0000F0E4		R	STRING	ODB supplier
0x0000F100		W	DWORD	Restart device module command, 1 is valid, each bit is defined: Bit0=1: restart main box, bit1=1: restart GSM module, bit2=1: restart GPS module, bit3=1: restart blue tooth module, bit4=1: restart OBD module, other bits are useless.
0x0000F101		W	STRING	12byte device serial ID
0x0000F120		R/W	DWORD	Calibrate/read full oil/full battery mileage, unit is 0.1km

Example:

Device upload a complete packet (Blue with underline is message body):

7E**0104**002D08140000089002437F58104020000F0D20B464952455F332E352E35540000F0D313323031392D30382D31322F31343A33323A3333CF7E

0x0104 Message body Example Description:

Startbyte	Field	Data type	Data (hexadecimal)	Description
0	Reply serial number	WORD	37F5	
2	Reply message ID	WORD	8104	
4	Parameter Quantity	BYTE	02	本次上传了 2 个参数
5	Parameter 1 ID	DWORD	0000F0D2	主机软件版本号
9	Parameter 1 Length	BYTE	0B	长度 11 个字节
10	Parameter 1 Value	STRING	464952455F332E352E3554	FIRE_3.5.5T
21	Parameter 2 ID	DWORD	0000F0D3	主机软件编译时间
25	Parameter 2 Length	BYTE	13	长度 19 个字节
26	Parameter 2 Value	STRING	323031392D30382D31322F31343A33323A3333	2019-08-12/14:32:33

22. Platform download to set NFC card number message ID:0x8430

NFC card can be used car rent or maintain, the normal card will be cleared after car is returned, super NFC card will not be cleared after car is returned, super NFC card is used for car owner or car maintain persons.

0x8430 Message body is as follow:

Startbyte	Field	Data type	Description
0	Operation	BYTE	00:Clear NFC card 01:Add NFC card 02:Clear all NFC card
1	Card Type	BYTE	00:Normal NFC card 01:Super NFC card
2	Card Number	BYTE[8]	NFC card number, High 4 bytes reserved, low 4 bytes HEX data is card number

Device will reply platform with general replay message ID 0x0001.

Example:

Device upload 0x8430 complete packet (Blue with underline is message body):

7E**8430**000A0814000000890E0E0100000000009D8977C0897E

0x8430 Message body Example Description:

Startbyte	Field	Data type	Data (hexadecimal)	Description
0	Operation	BYTE	01	Add new NFC card
1	Card Type	BYTE	00	Normal card
2	Card Number	BYTE[8]	00000000 9D8977C	Card NO:9D8977C

23. Device upload NFC lock unlock message ID:0x0430

The behavior of the NFC swipe will be reported to the server each time. The swipe behavior of the illegal NFC card will also be recorded to the server, and can be set as authorized card by server.

0x0430 Message body is as follow:

Startbyte	Field	Data type	Description
0	Operation	BYTE	00: NFC card swipe unlock 01: NFC card swipe lock 02: Unauthorized card (Do not perform any action, only upload to server, after the server confirmed, the card can be used)
1	Card Number	BYTE[8]	NFC card number, High 4 bytes reserved, low 4 bytes HEX data is card number
9	Time	BCD[6]	YY-MM-DD-hh-mm-ss
15	Latitude	DWORD	Unit:10^{-6} Degree, Accuracy is $1x10^{-6}$ Degree.
19	Longitude	DWORD	Unit:10^{-6} Degree, Accuracy is $1x10^{-6}$ Degree.

23	Reserved	BYTE[8]	Reserved 8 bytes for future used

Platform will reply device with general reply message ID 0x8001.

Example:

Device upload 0x0430 complete packet (Blue with underline is message body):

7E**0430**001F08140000089000701000000009D8977C0190812153233015A375806CD9A1800000000000000717E

0x0430 Message body Example Description:

Startbyte	Field	Data type	Data (hexadecimal)	Description
0	Operation	BYTE	01	NFC swipe lock
1	Card Number	BYTE[8]	00000000 9D8977C	Card NO: 9D8977C
9	Time	BCD[6]	190812153233	Year:2019, Month:8,Day:12, Time: 15:32:33
15	Latitude	DWORD	015A3758	22.689624°
19	Longitude	DWORD	06CD9A18	114.137624°
23	Reserved	BYTE[8]	0000000000000000	8 byte 0

24. 0x8F10 Platform Download to Arm / Disarm Device

0x8F10 Message body is as follow:

Startbyte	Field	Data type	Description
0	Arm or Disarm	BYTE	01: Arm
			02: Disarm

After the device is armed, when the device detect the shock alarm, the device will upload 0x0200 data package with alarm information to platform.

Example:

Platform download 0x8F10 ARM complete packet (Blue with underline is message body):

7E**8F10**000108140000008900300113A7E

Startbyte	Field	Data type	Data (hexadecimal)	Description
0	Operation	BYTE	01	Arm

Device will reply platform with general replay message ID 0x0001.

25. 0x8F05 Platform Download to Check OBD & Device Information

0x8F05 Message body is as follow:

0x8F05 Message body is empty

After receiving the OBD & Device command from the platform, the device will check OBD information & Device information immediately, and reply the platform with the following 0x0F05 data packet.

Example:

Platform download 0x8F05 complete packet (Blue with underline is message body):

7E**8F05**000008140000008900011E7E

26. 0x0F05 Device Reply Platform OBD & Device Check Message

Note:

1. The device will upload once OBD & device information after receive the platform 0x8F05 command, it will not upload OBD & device information unless platform download 0x8F05 CHECK command.
2. Device information normally is the T-Box or GPS tracker sms CHECK command reply information (Software version, Domain name or IP, device password, Communication Network & GPS signal strength, LBS cell information, Uploading interval, Working mode etc.) and SIM card CCID information.

0x8F05 Message body is as follow:

0x8F05 message body content: Valid flag + 17 bytes VIN code + DTC code + OBD data + Device information.

Startbyte	Data type	Description
0	BYTE	OBD valid flag, 1 valid, 0 invalid When this bit is 0, it means that the OBD information cannot be read because the vehicle engine is not running or the protocol is not supported or other reasons.
1	STRING	VIN Code, fixed 17 bytes
18	BYTE	Total DTC Code amount (N)
19	STRING, 5 Bytes	The First DTC Code
	STRING, 5 Bytes	The Second DTC Code
	STRING, 5 Bytes	The Third DTC Code
	STRING, 5 Bytes	The Fourth DTC Code
	.....	……
19+5N	BYTE	Total ID amount
20+5N (1st ID)	WORD	OBD ID, the ID description as follow

	BYTE	Parameter Length
		Parameter data, the parameter description as follow
20+5N (2ND ID)	WORD	OBD ID, the ID description as follow
	BYTE	Parameter Length
		Parameter data, the parameter description as follow
……	……	……
20+5N+M	BYTE	Device information length
21+5N+M	STRING	Device information

Note:

1. OBD information can be read only after the the car engine is started or ON position, if the engine is not ON status, the device can not read OBD information, only can get device information, and only upload device without OBD information.
2. Also the OBD information can not be read if the OBD protocol is not support.
3. If the OBD information ca not read, the valid flag bit is 0.

OBD ID & Parameter Description

OBD ID	Fields	Data Type	Description
0x010C	Engine Rotational Speed	WORD	Unit is r/min (RPM)
0x010D	Vehicle driving speed	BYTE	Speed from OBD, unit is **km/hour.**
0x0105	Coolant temperature	BYTE	The highest bit is the sign bit, 1 means negative, unit: Celsius degree
0x012F	Oil amount	BYTE	0-100%
0x0131	Milage	DWORD	Unit is hundred meters.
0x01D0	Instantaneous fuel consumption	BYTE	Unit is **0.1L/100Km**
0x01D1	Fuel consumption per hundred kilometers	BYTE	Unit is **0.1L/100Km**
0x011F	Running time after engine is started	WORD	Unit is seconds
0x0142	Control module voltage	WORD	Unit is 0.001V
0x0104	Engine load	BYTE	0-100%
0x010E	Ignition advance angle	BYTE	The most significant bit is the sign bit, 1 means negative, unit: degree
0x010F	Intake air temperature	WORD	The most significant bit is the sign bit, 1 means negative, unit: degree
0x0110	Air flow	WORD	Unit is **0.01Grams/sec**
0x0145	Relative throttle position	BYTE	0-100%
0x0111	Throttle position	BYTE	0-100%
0x0107	Long-term fuel correction 1	BYTE	The most significant bit is the sign bit, 1 means negative, unit:%
0x0109	Long-term fuel correction 2	BYTE	The most significant bit is the sign bit, 1

			means negative, unit:%
0x010A	Fuel pressure	WORD	Unit is kpa

Example:

Device upload 0x0F05 complete packet (Blue with underline is message body):

7E**0F05**00780814000000890007013132333435363738394142434445464748035033333434433135363655303239461201 0C020898010D013401050144012F015501310400014E1A01D0015901D10158011F020E470142022EE501040119010E0193010F020019011002 04C701450110011101120107010201090181010A020064045445535 4347E

Startbyte	Field	Data type	Data (hexadecimal)	Description
0	Valid Flag	BYTE	01	OBD data valid
1	VIN Code	STRING	31323334353637383941 42434445464748	VIN Code: 123456789ABCDEFGH
18	Total DTC Code amount	BYTE	0x03	Total 3 DTC codes
19	1st DTC code	STRING	5033333434	P3344
24	2nd DTC code	STRING	4331353636	C1566
29	3rd DTC code	STRING	5530323946	U029F
34	OBD ID numbers	BYTE	0x12	Total 18 ID numbers
35	Parameter ID	WORD	0x010C	Vehicle driving speed
37	Parameter Length	BYTE	0x02	Parameters length 2 bytes
38	Parameter Data	WORD	0x0898	2200 rpm
40	Parameter ID	WORD	0x010D	Vehicle driving speed
42	Parameter Length	BYTE	0x01	Parameters length 1 byte
43	Parameter Data	BYTE	0x34	52km/h
44	Parameter ID	WORD	0x0105	Coolant temperature
46	Parameter Length	BYTE	0x01	Parameters length 1 byte
47	Parameter Data	BYTE	0x44	68 Celsius degree
48	Parameter ID	WORD	0x012F	Oil amount
50	Parameter Length	BYTE	0x01	Parameters length 1 byte
51	Parameter Data	BYTE	0x55	85%
52	Parameter ID	WORD	0x0131	Milage
54	Parameter Length	BYTE	0x04	Parameters length 4 bytes
55	Parameter Data	DWORD	0x00014E1A	8553km

59	Parameter ID	WORD	0x01D0	Instantaneous fuel consumption
61	Parameter Length	BYTE	0x01	Parameters length 1 byte
62	Parameter Data	BYTE	0x59	8.9L/100km
63	Parameter ID	WORD	0x01D1	Fuel consumption per hundred kilometers
65	Parameter Length	BYTE	0x01	Parameters length 1 byte
66	Parameter Data	BYTE	0x58	8.8L/100km
67	Parameter ID	WORD	0x011F	Running time after engine is started
69	Parameter Length	BYTE	0x02	Parameters length 2 bytes
70	Parameter Data	WORD	0x0E47	Running time is 3655 seconds
72	Parameter ID	WORD	0x0142	Control module voltage
74	Parameter Length	BYTE	0x02	Parameters length 2 bytes
75	Parameter Data	WORD	0x2EE5	12.005V
77	Parameter ID	WORD	0x0104	Engine load
79	Parameter Length	BYTE	0x01	Parameters length 1 byte
80	Parameter Data	BYTE	0x19	25%
81	Parameter ID	WORD	0x010E	Ignition advance angle
83	Parameter Length	BYTE	0x01	Parameters length 1 byte
84	Parameter Data	BYTE	0x93	-19 degree
85	Parameter ID	WORD	0x010F	Intake air temperature
87	Parameter Length	BYTE	0x02	Parameters length 2 bytes
88	Parameter Data	WORD	0x0019	25 Celsius degree
90	Parameter ID	WORD	0x0110	Air flow
92	Parameter Length	BYTE	0x02	Parameters length 2 bytes
93	Parameter Data	WORD	0x04C7	12.23 Grams/sec
95	Parameter ID	WORD	0x0145	Relative throttle position
97	Parameter Length	BYTE	0x01	Parameters length 1 byte
98	Parameter Data	BYTE	0x10	16%
99	Parameter ID	WORD	0x0111	Throttle position
101	Parameter Length	BYTE	0x01	Parameters length 1 byte
102	Parameter Data	BYTE	0x12	18%
103	Parameter ID	WORD	0x0107	Long-term fuel correction 1

105	Parameter Length	BYTE	0x01	Parameters length 1 byte
106	Parameter Data	BYTE	0x02	2%
107	Parameter ID	WORD	0x0109	Long-term fuel correction 2
109	Parameter Length	BYTE	0x01	Parameters length 1 byte
110	Parameter Data	BYTE	0x81	-1%
111	Parameter ID	WORD	0x010A	Fuel pressure
113	Parameter Length	BYTE	0x02	Parameters length 1 byte
114	Parameter Data	WORD	0x0064	100kpa
116	Device information length	BYTE	0x04	Device information length is 4 bytes
117	Device information	STRING	54455354	Device information is TEST