PICTOR®

ELOCK 808 Protocol

Catalog

1. Protocol basis

1.1 Communication Mode

Using TCP socket communication.The device is tcp client,the platform is tcp server.

1.2 Data Type

See Table 1 for the data types used in protocol messages.

Table1 data type

data type	Description and requirements
BYTE	Unsigned single byte integer (byte, 8-bit)
WORD	Unsigned double byte integer (word, 16 bit)
DWORD	Unsigned four byte integer (double word, 32-bit)
BYTE[n]	n bytes
BCD[n]	8421 code, n byte
STRING	ascii code, if no data, set to null

1.3 Transfer rules

The protocol uses big endian network byte order to transfer words and doublewords.

As follows:

——BYTE：Transfer by byte stream;

——WORD：Pass the high octet first, then the low octet;

——DWORD：First pass the high 24 bits, then the high 16 bits, then the high 8 bits, and finally the low 8 bits.

1.4 Message Composition

1.5 Figure 1

Each message consists of identification bit, message header, message body and verification code. The message structure is shown in Figure 1

Frame header	Message header	Message body	Check code	Frame tail
0x7E			1byte, xor	0X7E

Figure 1 Message structure chart

1.6 Frame header / Frame tail

Frame header and tail=0x7E.

If 0x7e appears in the xor check code, message header and message body, escape processing is required. The definition of escape rules is as follows: 0x7e < - > 0x7d followed by a 0x02; 0x7d < - > 0x7d followed by a 0x01.

The escape process is as follows:

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

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

Example:

Send a packet whose content is 0x30 0x7e 0x08 0x7d 0x55, then it is encapsulated as follows: 0x7e 0x30 **7d 0x02** 0x08 **0x7d 0x01** 0x55 0x7e.

1.7 Message header

Table 2 message header for details

Start byte	field	Data type	Description and requirements
0	Message ID	WORD	cmd
2	Message body length	WORD	Message body length
4	DeviceID	BCD[6]	Device ID, parsed into 12 characters, the preceding 0 can be omitted eg: 0x023456789012==》23456789012
10	Message serial number	WORD	Cycle accumulation from 0 in the order of sending

1.8 check code

Check code refers to a byte occupied from the beginning of the message header to the previous byte of the check code. Adopt XOR algorithm.

2. Data Format

2.1 Device general response (uplink)

Message ID：0x0001 。

Table 4 general response message body data format of device

Start byte	Field	Data type	Description
0	Response serial number	WORD	Serial number of corresponding platform message
2	Response ID	WORD	ID of the corresponding platform message
4	result	BYTE	0: success / confirmation; 1: failure; 2: wrong message; 3: not supported

2.2 Platform general response (downlink)

Message ID：0x8001

Table 5 general response message body data format of platform

Start byte	Field	Data type	Description
0	Response serial number	WORD	Serial number of corresponding terminal message
2	Response ID	WORD	Message ID of the corresponding terminal message
4	result	BYTE	0: success / acknowledgement; 1: failure; 2: message error; 3: not supported; 4: alarm processing acknowledgement;

2.3 Device Heartbeat

Message ID：0x0002 。Device heartbeat data message body is empty。

2.4 Device Authentication

When the terminal connects to the platform, it sends a message to the platform so that the platform can verify its identity.

Message ID：0x0102。

Table 9 Message body data format of device authentication message

Start byte	Field	Data type	Description
0	Authentication code	STRING	SIM’S ICCID(20 BYTES)+DEVICE VERSION

Note:

1: Only sent in real-time online mode, not in sleep mode。

2.5 Set device parameters

Message ID：0x8103

Table 10 Data format of device parameter message body

Start byte	Field	Data type	Description
0	Total parameter	BYTE	
1	Parameter item list		See Table 11 for parameter format

Table 11 data format of terminal parameters

Field	Data type	Description
Parameter ID	DWORD	See table 12 for the definition and description of parameter ID
Parameter length	BYTE	
Parameter value		In case of multi value parameter, multiple parameter items with the same ID, such as dispatching center phone number, are used in the message

Table 12 definition and description of parameters of terminal parameter setting

Parameter ID	Data type	Description
0x0001	DWORD	Heartbeat transmission interval of terminal, in seconds (s)
0x0010	STRING	SIM’S APN
0x0013	STRING	server IP address
0x0018	DWORD	Server TCP port, 4 digital
0x0027	DWORD	Reporting interval during sleep, in seconds (s), **=0 means to cancel timed sleep, and > 0 means to enable timed sleep**
0x0029	DWORD	reporting interval, in seconds (s), >=5
0x002A	**BCD[6]**	**6byte time at utc+8, hexadecimal literal meaning: for example, 0x0800402152050 is 2008-4-2 15:20:50**

0x0055	DWORD	Max speed, (km/h)
0x0080	DWORD	Mileage, 1/10km

Note: 1: please send 0x002a setting time command and calibrate the device time within 500ms after receiving the device authentication message.

2.6 Query device parameters

Message ID: 0x8104 。Query device parameter message body is empty。

2.7 Query device parameter response

Message ID: 0x0104。

Table 16 data format of response message body for querying equipment parameters

Start byte	Field	Data type	Description
0	Response serial number	WORD	Serial number of the corresponding device parameter query message
2	Response parameter num	BYTE	
3	Parameter item list		The format and definition of parameter items are shown in table 10

2.8 Device control

Message ID: 0x8105

Table 17 data format of device control message body

Start byte	Field	Data type	Description
0	cmd	BYTE	See Table 18 for the description of device control command
1	Command parameter	STRING	For the format of command parameters, please refer to the following description.

Table 18 description of device control command

Cmd	Command parameter	Description
4	NULL	REBOOT

5	NULL	Parameter reset to factory settings except IP

2.9 Querying device property

Message ID: 0x8107 。Query device property message body is empty.

Device reply: 0201+additional message

2.10 Notification of device upgrade results

Message ID: 0x0108。 The device uses this command to notify the platform after the upgrade is completed

Table 22 notification message body data format of device upgrade results

Start byte	Field	Data type	Description
0	Upgrade type	BYTE	0: device, 1~255: other
1	Upgrade results	BYTE	0: success, 1: fail, 2:cancel

2.11 Location information report

Message ID: 0x0200。

The location information report message body is composed of the basic location information and the list of additional information items, and the message structure is shown in Figure 3:

Basic location information	additional information items

Figure 3 Location report message structure chart

The list of location additional information items is determined by the combination of location additional information items or not, according to the length field in the message header

Table 23 Basic location information data format

Field	Data type	Description
alarm bits	DWORD	See Table 24 for the definition of alarm bits
state bits	DWORD	See Table 25 for the definition of status bits

latitude	DWORD	Latitude in degrees multiplied by 6 times 10, accurate to one millionth of a degree
longitude	DWORD	Longitude in degrees multiplied by 6 times 10, accurate to one millionth of a degree
altitude	WORD	Altitude in meters (m)
speed	WORD	1/10 km/h
direction	WORD	0-359 degrees, north is 0, clockwise
time	BCD[6]	YY-MM-DD-hh-mm-ss (GMT + 8 time, the time involved in this protocol is in this timearea)

Table 24 definition of alarm bits

bit	definition	processing instructions
0	1: Emergency alarm, triggered after the alarm switch is action	Clear after receiving the response
1	1: Over Speed alarm	Maintain until the alarm condition is released
2	1: Fatigue driving alarm	Maintain until the alarm condition is released
3	1: Danger warning	Clear after receiving the response
4	1: GNSS module fault	Maintain until the alarm condition is released
5	1: GNSS antenna not connected or cut	Maintain until the alarm condition is released
6	1: GNSS antenna short circuit	Maintain until the alarm condition is released
7	1: main power low voltage alarm	Maintain until the alarm condition is released
8	1: main power cut	Maintain until the alarm condition is released

bit	definition	processing instructions
9	1: Display fault	Maintain until the alarm condition is released
10	1: TTS module fault	Maintain until the alarm condition is released
11	1: Camera fault	Maintain until the alarm condition is released
12	1: IC module fault	Maintain until the alarm condition is released
13	1: over speed warning	Maintain until the alarm condition is released
14	1: Fatigue driving warning	Maintain until the alarm condition is released
15-19	Reserved	
20	1: enter and exit area	Clear after receiving the response
21	1: enter and exit route	Clear after receiving the response
22	1: Route travel time is too short/long	Clear after receiving the response
23	1: Off route alarm	Maintain until the alarm condition is released
24	Reserved	
25	Reserved	Maintain until the alarm condition is released
26	1: Vehicle theft	Maintain until the alarm condition is released
27	1: Illegal vehicle ignition	Clear after receiving the response
28	1: Illegal movement of vehicles	Clear after receiving the response
29	1: Collision warning	Maintain until the alarm condition is released
30	1: Rollover warning	Maintain until the alarm condition is released
31	1: Illegal door opening alarm	Clear after receiving the response

Table 25 Definition of status bits

bit	state
0	0: ACC off; 1: ACC on
1	0: Imprecise positioning; 1: Precise positioning
2	0: North latitude; 1: South latitude
3	0: East longitude; 1: West longitude

4-7	Reserved
8-9	00: empty; 01: half load; 10: reserved; 11: full load
10	0: the vehicle oil circuit is normal; 1: the vehicle oil circuit is disconnected
11	0: vehicle circuit is normal; 1: vehicle circuit is disconnected
12	0: door unlocking; 1: door locking
13	0: door 1 closed; 1: door 1 open (front door)
14	0: door 2 closed; 1: door 2 open (middle door)
15	0: door 3 closed; 1: door 3 open (rear door)
16	0: door 4 closed; 1: door 4 open (driver's seat door)
17	0: door 5 closed; 1: door 5 open
18	0: positioning without GPS ; 1: positioning with GPS
19	0: positioning without BDS ; 1: positioning with BDS
20	0: positioning without GLONASS; 1: positioning with GLONASS
21	0: positioning without Galileo ; 1: positioning with Galileo
22-23	Reserved
24 ~31	**0x10 ~ 0xff: lockstatus (see Appendix 2 for details)** Others: reserved

Table 26 Location additional information item format

Field	Data type		Description
Additional information ID	BYTE	1-255	
Additional information length	BYTE		defined in Table 27
Additional information			defined in Table 27

Table 27 Definition of additional information

Additional information ID	Additional information length	Description
0x01	4	mileage, DWORD, 1/10km,
0x05-0x10		reserved
0x11	1 或 5	reserved
0x12	6	reserved

0x13	7	reserved
0x14-0x24		reserved
0x25	4	reserved
0x2A	2	IO status bits, as defined in Table 32
0x2B	4	Analog quantity, bit0-15, AD0; bit16-31, AD1。
0x30	1	BYTE, Wireless network signal strength
0x31	1	BYTE, Number of GNSS positioning satellites
0xE1	7	LBS INFO， See 0xE1 package additional information format (only for 2G lock)
0XE2	15	IMEI (15 BYTE)
0XE3	n	VERSION， ASCII string
0XE6	20	SIM ICCID ,ASCII string
0x5D	1+n*10	LBS INFO: The first byte is the number of base stations, followed by N base station data; base station data: see 0x5D packet additional information format (for 4G lock)
0xE7	3	24 alarm status; see 0xE7 package alarm status bit definition
0xE8	3	24 switch status; See 0xE8 package switch status bit definition
0xE9	1	Device power, percent
0x51	2*n	N-channel temperature, 2 bytes per channel, Unit: 1 / 10 degree, 0xFFFF means the channel temperature is invalid
0x58	2*n	O-channel humidity, 2 bytes per channel(0.0-100.0%); for example, 0x033a means 82.6%, and 0xffff means the humidity is invalid
0x56	2	Device power voltage, 2 bytes, First byte: power percentage, 0-10, (1 = > 10%... 10 = > 100%) Second byte: voltage, unit: 50mV, For example, 0x50 = 80 = > 80 * 50mV = 4000mv
0xEA	6	G-sensor three-axis (x, y, z) acceleration, acceleration of each axis is 2 bytes; Unit: 1 / 256g, g is gravity acceleration; XYZ value uses hexadecimal complement to distinguish positive and negative

0xE1 package additional information format (7B LBS INFO)

Start byte	Field	Data type	Description
0	MCC	WORD	2 byte MCC，eg:CN=460=0x0460
2	MNC	Byte	1 byte MNC(HEX)，eg 12 =0x0B
3	LAC	WORD	2 byte LAC (HEX), eg:0x2842
5	CELL ID	WORD	2 byte CELL ID (HEX), eg: 0x0461

0x5D package additional information format (10BLBS INFO)

Start byte	Field	Data type	Description
0	MCC	WORD	2 byte MCC，eg:CN=460=0x01CC
2	MNC	Byte	1 byte MNC(HEX)，eg 12 =0x0B
3	LAC	WORD	2 byte LAC (HEX)， eg:0x2842
5	CELL ID	DWORD	4byte CELL ID(HEX),eg:0x01501234
9	CSQ	Byte	1 byte csq

0XE7 package **alarm status bit definition**

bit	alarm status
0	1:Lock rope cut alarm
1	1:Emergency unlocking alarm
2	1:Removed alarm
3	1:Lid opened alarm
4	1:Vibration alarm
5	1:Tilt alarm
6	1:Rollover alarm
7	1:High temperature alarm
8	1:Low temperature alarm
9～24	1: NO9~NO24 alarm

0XE8 package s**witch status bit definition**

bit	status
0	1:Knob on
1	1:Motor release
2	1:Lock rod opened
3	1:Lock rod cut
4	1:Lock rope cut
5	1:Lid opened
6	1:Shell opened
7	1:Removed
8	**1: Vibration, 0:Static**
9	**1：sleep mode**
10	**1：Deep sleep mode**
11	**1：Satellite positioning off**
12	**1：Device power off**
13	**1： Firmware remote upgrade in progress**
14～19	1：No14～No19 switch on
20~23	NET TYPE 0:GSM (2G) 2:UTRAN (2G) 3:GSM W/EGPRS (2G) 4:UTRAN W/HSDPA (3G) 5:UTRAN W/HSUPA (3G) 6:UTRAN W/HSDPA and HSUPA (3G) 7: E-UTRAN (4G) 8: UTRAN HSPA+ (4G) 9:5G 10:WIFI

Table32 IO Status bits

bit	Definition	
0	1：Deep sleep status	
1	1：Sleep status	
2-15	reserved	

2.12 Location information query

Message ID：0x8201 。
Location information query message body is empty。

2.13 Location information query response

Message ID：0x0201。

Table 33 location information query response message body data format

Start byte	Field	Data type	Description
0	Response serial number	WORD	Serial number of the corresponding location information query message(0x8201 cmd)
2	Location information report		See 8.12 for location information report

2.14 Text Cmd

Message ID：0x8300。

Table 37 body data format of text message distribution

Start byte	Field	Data type	Description
0	flag	BYTE	0x01
1	Txt info	STRING	Up to 1024 bytes,ascii code， see Appendix 3：Text message instruction

2.15 Transparent data downlink

Message ID： 0x8900。

Table91 Data format of transparent data downlink message body

Start byte	Field	Data type	Description
0	Transparent message type	BYTE	0x81: E-LOCK business data
1	Transparent message content		See “10 ToTarget E-LOCK business protocol” for details

2.16 Transparent data uplink

Message ID: 0x0900

Table 92 Data format of transparent data uplink message body

Start byte	Field	Data type	Description
0	Transparent message type	BYTE	0x81: E-LOCK business data
1	Transparent message content		See “10 ToTarget E-LOCK business protocol” for details

3.business protocol

3.1 Text information upload

Message ID =0x 0300
The data format is the same as 0x8300, the Flag is 4

Start byte	Field	Data type	Description
0	Flag	BYTE	0x04
1	Txt info	STRING	Up to 1024 bytes,ascii code

3.2 E-LOCK business protocol framework

Note：elock data frame header '*', frame tail '#'

1) Device uplink protocol structure:

Data length	Elock data	Elock additional information	serial number	XOR
1B (Length of elock data to XOR)	0x2A(**frame header**) ...(Specific elock data) 0x23(**frame tail**)	28byte gps information + 7b / 10B base station information	2B Active upload = 0x0000 Reply = downstream serial number	1B

2) Center downlink protocol structure:

Data length	Elock data	serial number	CRC
1B (Length of elock data to XOR)	0x2A(**frame header**) ...(Specific elock data) 0x23(**frame tail**)	2B downstream serial number, 0x0001~0XFFFF	1B

3.3 ELock operation command

Seal /Unseal /Cancel Alarm /Set dynamic password /Modify local password

Center send：

Lock operation cmd（1B, 0x15）+ Cmd（1B）+LockID(4B)+Gate（1B）+ Bill (8B)+ LineCode(2B) + Key(6B)+ **VaildTime**（1B）+ reserved(4B) +**DateTime**（6B）

NOTE :

When Cmd is Set dynamic password:

Key is the new dynamic password, and **VaildTime** is the effective time of the dynamic password, in minutes (1-255 minutes, it is recommended not to exceed 20 minutes, if 0, it means to clear the dynamic password).

When Cmd is to modify local password: key is the new local password

Device reply:

Lock operation reply cmd (1B,0x55) + Cmd (1B) +LockID(4B)+Gate (1B) + Bill (8B)+**Voltage(1B)+LockStatus (1B) + MotoStatus (1B)+**LineCode(2B)+**Operation identification(8B)+**cmdSRC(1B, Operation source: SMS 0x00, auto 0x01, keyboard 0x02, handset 0x03, platform 0x04, gate reader 0x05, IC card 0x06, others 0x07-0x0f)+**DateTime (6B)**

Note:

1) During platform, RF, keyboard operation:

Operation identification (8B) = operation identification code ('R '= RF,' C '= center platform,' K '= keyboard,)

+Opcode(1B)+ password entered(6B)

2) when setting dynamic password reply,

Operation identification (8B) = operation identification code ('1 ': valid dynamic password, 0: invalid dynamic password)

+Received dynamic password and effective time (7B)

3) During IC card operation:

Operation identification (8B) = operation identification code ('I '= IC card)

+Opcode (1b, 0x60 seal card, 0x61 unseal card, 0x62 temporary unseal card)

+IC Card No.(4B)+Remaining num times(1B ,only for temporary unseal card)

3.4 Bind instruction（only for 7B ELock）

3.4.1 Temporary unsealing authorization

send:

0x12+ SubCmd2（1B, 0x02）+0x01（1B）+IC card No（4 B）+num times(1B）+DateTime **(6B)**

reply:
0x52+ SubCmd2（1B, 0x02）+0x01（1B）+IC card No（4 B）+num times(1B）+DateTime **(6B)**

Note: If the num times is 0, the authorization is cancelled. If the num times is 255, the authorization is unlimited and the number is not decreasing;

3.4.2 Query on authorization status of temporary unseal card:

send:

0x12+ SubCmd2（1B, 0x03）+DateTime **(6B)**

reply:
0x52+ SubCmd2（1B, 0x03）+ 0x01（1B）+IC card No（4 B）+**Remaining num times**(1B）+DateTime **(6B)**

3.4.3 IC card blacklist operation:

send:

0x12+ SubCmd2（1B, 0x04）+subcmd3(1B，0x01 overwrite；0X02 append；0x03 delete；0x04 clear；0x05 query)+IC card num N（1B，1～45）+IC card No list（4 B*N，when N = 0, no such item）+DateTime **(6B)**

query reply:

0x52+ SubCmd2（1B, 0x04）+subcmd3(1B，0x05 query)+Total number of current blacklists K（2B）+**serial number**（1B）+IC card num N（1B，1～45）+IC card No list（4 B*N）+DateTime **(6B)**

Note: when the number of IC card blacklists is greater than 45, upload this reply instruction multiple times, and the serial number increases.

Other reply:

0x52+ SubCmd2（1B, 0x04）+subcmd3(1B，0x01 overwrite；0x02 append；0x03 delete；0x04 clear)+Total number of current blacklists K（2B）+DateTime **(6B)**

3.5 Active upload command of elock information

Send (uplink):

ELock active information（1B, 0x01,）+SubCmd（1B）+LockID(4B)+Gate（1B）+ Voltage(1B)+LockStatus（1B）+ MotoStatus (1B)+ RESERVED (4B)+VER(1B)+DateTime （6B）

Reply(downlink)：

ELock active information reply（1B ,0x61）+SubCmd（1B）+LockID(4B)+DateTime （6B）

SubCmd：

Up		Down reply	
Elock Info	0x01	null	
Knob destroyed alarm	0x02	null	
Lock body broken alarm	0x03	null	
Lock rod cut alarm	0x04	null	
Lock rod open alarm	0x05	null	
Apply for dynamic password / apply for unlock	0xF2	0xF2	

3.6 Appendix 0: Description of relevant fields of the protocol

<table>
<tr><th>field</th><th>note</th><th>description</th><th>length</th></tr>
<tr><td>Cmd</td><td>Specific operation command words</td><td>See Appendix 1: command list</td><td>1B</td></tr>
<tr><td>LockID</td><td>ELOCK ID</td><td>Elock ID: 8digit number. Transfer the front/rear 4 decimal digit number to 2Bytes Hex number as the hight/low part of the Elock Id.
For example 83181001 转换为 0x207E03E9</td><td>4B</td></tr>
<tr><td>Gate</td><td>Gate num</td><td>RESERVED,fix 0X00 when downlink</td><td>1B</td></tr>
<tr><td>Voltage</td><td>Battery Voltage</td><td>
<table>
<tr><th>HEX</th><th>Voltage</th><th>description</th></tr>
<tr><td>0x30</td><td>3.3 V</td><td>Serious low voltage</td></tr>
<tr><td>0x31</td><td>3.6 V</td><td>Low voltage</td></tr>
<tr><td>0x32</td><td>3.7 V</td><td>Voltage normal</td></tr>
<tr><td>0x33</td><td>3.8V</td><td>Voltage normal</td></tr>
<tr><td>0x34</td><td>3.9V</td><td>Voltage normal</td></tr>
<tr><td>0x35</td><td>4.0V</td><td>Voltage normal</td></tr>
<tr><td>0x36</td><td>4.1V</td><td>Voltage normal</td></tr>
<tr><td>0x37</td><td>4.2 V</td><td>Full</td></tr>
</table>
</td><td>1B</td></tr>
<tr><td>LockStatus</td><td>Elock status</td><td>It is only valid for the uploaded information (see Appendix 2. In the downlink, this bit is reserved for use and 0x00 is filled</td><td>1B</td></tr>
<tr><td>Bill</td><td>Bill number</td><td>Bill num, hex code, resolved to hex literal value（eg:0x1234567890ABCDEF=1234567890ABCDEF）</td><td>8B</td></tr>
<tr><td>LineCode</td><td>Line number</td><td>transfer 4 decimal digit number to 2 bytes HEX</td><td>2B</td></tr>
<tr><td>Key</td><td>password</td><td>Write it to the elock when sealing. When unsealing, the elock compares the key contained in the unseal instruction with the key stored by</td><td>6B</td></tr>
</table>

		itself. If it matches, it will be unlocked. Otherwise, it will fail. 1. Password lock: direct 6-digit ASCII number	
DateTime	Data generation time（UTC+8）	The literal meaning of the hex. eg， 0x080402152050 is 2008-4-2 15:20:50	6B

3.7 Appendix 1：Command list

Downstream from the center		Reply of the device	
NAME	Cmd code	NAME	Cmd code
Set dynamic password	0xA0	Set dynamic password success	0xA1
Modify local password	0xA2	Modify local password success	0xA3
Seal	Remote seal: 0x32	Seal success	0x80
		Re-seal	0x81
		Seal fail for not lock	0x82
		Seal fail for low battery	0x83
		Can not seal for elock abnormal: illegal opened	0x84
		Can not seal for elock abnormal: emergency opened	0x85
		Can not seal for elock rod cutted alarm	0X86
		Can not seal for elock opened alarm	0X87
		Seal overtime	0X89
Unseal	Remote unseal：0x38	Unseal success	0x90
		Re-unseal	0x91
		Unseal when elock is opened	0x92
		Unseal fail for the wrong password	0x93
		Can not unseal for elock abnormal: illegal opened	0x94
		Can not unseal for elock abnormal: emergency opened	0x95
		Can not unseal for elock opened alarm	0x96
		Can not unseal for elock rod cutted alarm	0x98
		Unseal without sealed	0x97
		Unseal overtime	0x99
Cancel alarm	Remote cancel alarm：	Cancel alarm success	0x70
		Elock is not alarm status	0x72
		Can not cancel alarm for wrong	0x73

	0x42	password	
		Can not cancel alarm for elock abnormal: illegal opened	0x74
		Can not cancel alarm for elock abnormal: emergency opened	0x75
		Cancel alarm overtime	0x71

3.8 Appendix 2：LockStatus description

MSB（(0xG0)）	decscription	LSB(0X0H)
0x1x	OPEN	RESERVED
0x2x	Standby	
0x3x	Not ready	
0x4x	Sealed	
0x5x	Local sealed	
0x6x	Unsealed	
0XBx	Local unsealed	
0x7x	Alarm	bit0=1：elock rod cut alarm bit1=1：opened alarm bit2=1：ELock body broken alarm bit3=1:Knob destroyed alarm
0x8x	RESERVED	
0x9x	Cancel alarm	
0xAx	Abnormal	

If LockStatus byte(HEX) =0xGH
Then G is the High 4 bit（MSB）, H is the Low 4 bit(LSB)

Eg: LockStatus byte (HEX)=0x71
Then, High 4 bit=0x70=Alarm
Low 4 bit=0x01=0001 (4bit bin data) =bit3,bit2,bit1,bit0
So: bit3=0,bit2=0,bit1=0,bit0=1 ,
bit0=1 , it means that **elock rod cutted alarm**

Note: （1）Recommend：When the elock is in the local sealed state, it means that the device has been locked, the platform needs to issue seal instructions according to the business needs to seal it and let the lock enter the seal state.

(2) After the platform is sealed, the local password will be invalid and the sealed password will take effect

3.9 Appendix 3：Text message instruction

Txt cmd	Cmd function	MARK
TT%BHVOL=DD	Low battery level protection threshold setting, DD = 00 ~ 89, percentage	
TT%BHVOL=?	Query low battery level protection threshold	
TT%OFFDTM=DDDM	Delay power-off time, DDD = 000 ~ 999, unit: minute	Text content reply
TT%OFFDTM=?	Query the current delay power off time	Text content reply
IAP1,P,112.74.131.151,19	The yellow background of the remote upgrade instruction is the	

19,HEX,GDWgdw?1/04,HW3H31V3516.bin,..	IP address of the server where the upgrade file is located, and the green background is the name of the upgrade file, which can be modified as needed. (more than 70% of power, can be upgraded in standby / unsealed state)	
IAP1,P:112.74.131.151,1919,HEX,GDWgdw?1/04,HW3H31V3516.bin,..	Hardware unlimited upgrade instructions, careful use, may cause upgrade failure program loss, especially when the power is low. Whether upgrade is allowed is limited by the platform.	
TT%REST=1	The static sleep function is on	Text content reply
TT%REST=0	Static sleep off (default)	
TT%REST=?	Static sleep function switch status query	
TT%RESTTIME=nnnnM	Static sleep start time setting, unit: minute (indicates that the sleep starts after nnnn minutes of continuous rest, nnnn > 1)	For 7B Type
TT%RESTTIME=?	Static sleep start time query, in minutes	For 7B Type
TT%GPS=1	Turn on GPS	For 7B Type
TT%GPS=0	Turn off GPS	For 7B Type
TT%VLOW=DD	Low battery level alarm threshold setting, DD = 10 ~ 80, percentage	
TT%VLOW=?	Low battery level alarm threshold query	
TT%KEY0=123456	Modify the static password by the context command (6 digits)	FOR 7A