User Manual

V1. 4

SKU: LOCK- 701

Content

1 Brief Description

LOCK-701 was designed and be used for the following fields: Container transportation and Van truck for cargo delivery.

2 Warranty Policy Statement

LOCK-701 Series product warranty terms

Within one year from the date of purchase to enjoy the free factory warranty service after the warranty expires, if maintenance is required, then depending on the extent of the damage free of charge.

The following does not belong to the warranty scope：

①Improper use or failure and damage caused by human factors;

②Without authorization, disassembled, modified damage;

③By the fire, impact and shock force or force majeure factors (such as fire, traffic accident, etc.) caused by the fault and damage.

Service

①Remote assist users troubleshooting.

②Provide terminal hardware technology parameters and fault test judgment method, free maintenance training of maintenance personnel.

③Implementation of special tracking, communication and service.

3 Features List

SN	Feature name	note
1	Easy Installation	No need fix it by screws
2	Build in 15000mA Rechargeable battery	
3	Build in G-sensor	Detecting vibration
4	GPRS/SMS communication	TCP/SMS
5	Geo-fence	1 Geo-fence
6	Remote unlocking	Unlocking the device by command
7	Supports 9 alarms	steel string cut, swipe RFID tag, unlocking, Wrong password, Vibration, enter geo-fence, exit geo-fence, low battery, Open Back cap
8	Support 5 VIP numbers	SMS alarm receiving and SMS configure
9	Support 50 authorized RFID card	
10	Wake up by 5 conditions	vibration, receiving SMS command/calling, swipe card, Locking/unlocking, RTC(every 30 minutes)

4 Product basic parameters

Item	Note
Size	195mm x 114mm x 37mm
Weight	700g(Include main unit, antenna, battery, shell)
Material	Engineer plastic
GPS Module	Ublox MAX-7Q
GSM module	Quectel M35

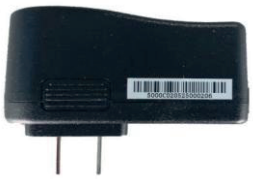
Working temperature	-20°C -- +60°C
Store temperature	-40°C -- +80°C
Humidity	5%—99%
Standard battery	Rechargeable battery 15000mAh
Average working current	<90 mA
Average current stand by	<100uA
Waterproof standard	IP67
Transmission mode	Support TCP(GPRS) or SMS(message)

5 Product Appearance

Front view

Back view

6 Standard Accessories

Name	Picture	Standard	Optional
LOCK-701 Main device			
steel string			
RFID tags			
Serial port configure cable			
Serial port upgrade cable			
Micro USB configure cable			
Charger Adapter (DC5V- 2A output)			

7 First Use

7.1 Basic Information Instructions

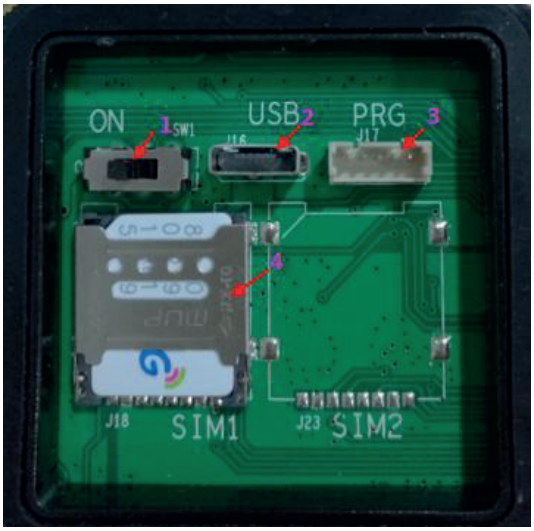
7.1.1 Front view Instruction

1: **Locking string**: lock this device
2: **Swipe card area**：Swipe RFID card
3: **LED indicator:** GPS-blue led; GSM-green led; LVS-yellow led; CHG-red led.

7.1.3 Bottom view Instruction

1: **Charger plug:** DC 5V -2A Input
2: **Label:** LOCK-701 's ID . 10 digital numbers. e.g.7551015014

7.1.3 Back view Instruction



1: **Power switch**:Turn left ,so power on the deivce

2: **Micro USB socket**：connect Micro USB configure cable to PC,so configure parameters or charging battery

3: **Serial port for setting parameters or upgrading firmware**：connect them to PC with serial port configure cable or serial port upgrading cable, so configure device's parameters or upgrading its firmware.

4: **SIM card slot**：Unlock by pulling horizontally, and put the **Micro-SIM** card.

7.1.4 LED indicators and Buzzer Instruction

LED indicators:

LED Indicator	Status	Instruction
Blue LED GPS	Blinking every 10 sec	GPS signal is valid.
	Blinking every 3 sec	GPS signal is invalid
	Off	The device is in sleep mode or power off.
Green LED GSM	Blinking very fast, 3 times in one sec	Registered GSM and connected to GPRS,sending data to server
	Blinking every 3 sec	Registered GSM,but can't connect to GPRS,need to check parameters setting and if SIM card was activated GPRS function.
Yellow LED	Blinking every 3 sec	When built-in battery's power less than 30%
Red LED CHG	Charging or charging full	When charging ,stable on and red color; When charged full, stable on and green color

Operation and Buzzer Instructions:

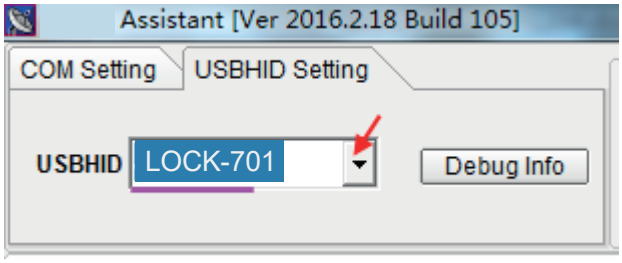
SN	Operation/condition	Buzzer and LED status
1	Swipe unauthorized RFID tag	Buzzer ring 3 second continuously, GPS led blinking 3 sec
2	Remote Unlocking	
3	Batch Add authorized ID more than 50 RFID tags	
4	Swipe authorized RFID tag	Buzzer ring once, GPS led blinking once
5	Add authorized ID by swiping the RFID tag successfully	
6	Locking Automatic	
7	never disconnect the steel string after unlocking	After unlocking 10 sec ,Buzzer ring every 1 sec, GPS led keep blinking, Stopping until steel string inserted or 60 sec later
8	Insert steel string but never locking automatic successful	

7.1.5 Prepare and Connect

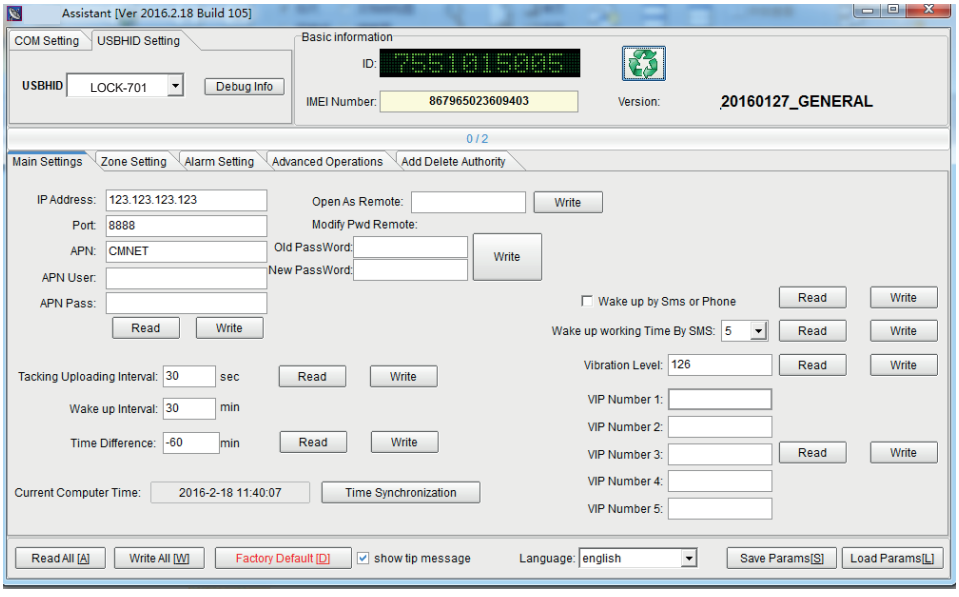
1 : SIM card(Micro-SIM card) with SMS/ GPRS function activated
2: Open the SIM card slot and insert the SIM card
3: Switch on the power switch on LOCK-701
4: Connect the Micro USB configure cable to this device and PC

7.2 LOCK-701 Config ure software and Initializing

1）Connect the device to PC Via Micro USB configure cable
2）Run the configure software, the USB will be connected automatically, as follows:



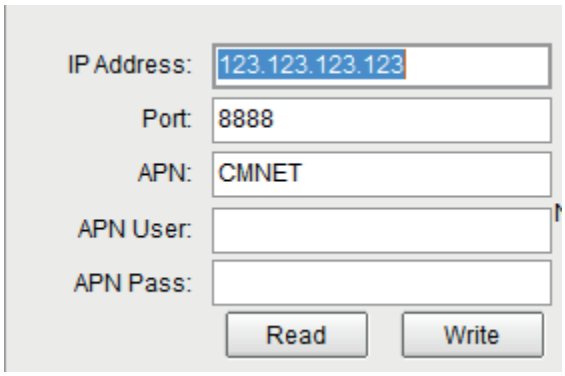
Note:
If can't get this info, shake this device, so wake up it. If still the same, t ry another PC.



Click icon  , the tracker ID will be shown if well connected.

7.2.1 Basic configuration

7.2.1.1 Set IP address /Port/APN



Input IP address, Port, etc,

Click button "Write", the IP, port, APN will be set,

Click "Read", Read the Previous setting of this device.

PS: APN is the Access Point Name of GPRS. For example, China Mobile's APN is CMNET. APN user and password is depending on your sim card service provider. Many companies don't have APN user and password, if so, no need to write

7.2.1 .2 Set Tracking mode / Wake up Time Interval

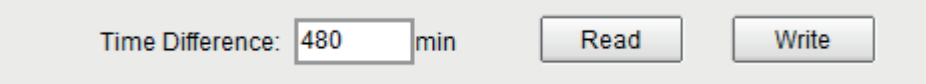
1) When device wake up by vibration, swipe RFID card etc., the device will work under this tracking mode and uploading data to server as this preset time interval.

Value range: 5 to 600sec, default value is 30 sec.

2) Wake up time Interval, the device will wake up as this preset interval automatically(RTC), and then uploads one data and go to sleep .

value range : 30 to 1440 minutes .default value is 30 minutes.

7.2.1.3 Set time difference



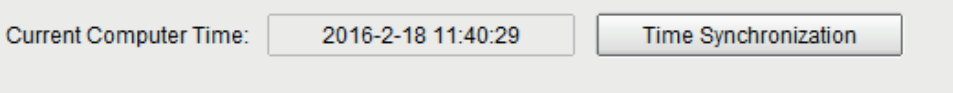
Input Time difference : from -720 to 780

click " Write " to set time difference.

Click "Read" to read previous setting

The time difference is the difference between local time and Greenwich time, the unit is minute. e.g UTC+8, so time difference is 480

7.2.1.4 Time synchroniza tion



When testing this device at office and can't get GPS signal, you can correct the time by "time synchronization" .

Normally, no need to do this as LOCK-701 device will obtain correct time from server automatically.

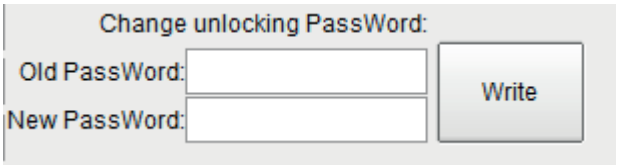
7.2.1.5 Open the Lock

Open the Lock by password: password :6 digital numbers. Default, the Password is 888888.

Input the unlocking password of this device, and click "Write", So Open the lock .

If you input a incorrect password, click "write" button, Pop -up "Open lock operation failed" ; if correct password, pop-up "open lock operation success"

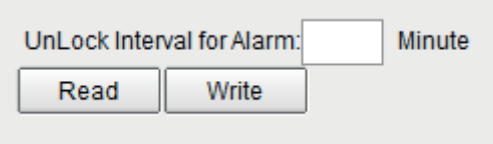
7.2.1.6 Change Unlocking Password



Input the old password, default is 888888,and input new password, 6 digital numbers. click "write" button, if old password and communication is ok, pop -up "modify password

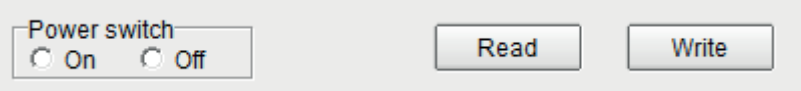
operation success", If old password is incorrect, pop -up "modify password operation failed".

7.2.1.7 Unlock interval for alarm



Value range: 3 to 180 minutes. default value is 120 minutes.
When the device is unlocking, after this preset time interval, will trigger unlocking alarm.

7.2.1. 9 Enable /Disable Power Switch



Click choice box 'on' of "Power Switch" and Click "write" button, so the power switch is effective;
Click the choice box 'off', and click "Write" button, s o power switch is useless, It means can't turn off the power of device by this switch.

7.2.1. 10 Enable /Disable Wake up by SMS command or Calling

Click choice box 'on' of "wake up by SMS or calling" and Click "write" button, so enable this function ;
Click the choice box 'off', and click "Write" button, s o disable this function.

7.2.1. 11 Set Working time after wake up

Set LOCK-701 working time after waked up .
The time range from 3 to 10 minutes, default as 10 minute.

7.2.1.1 2 Set LOCK-701's Vibration Level

To set the vibration parameter, the bigger the value, the bigger vibration need.

Range from 63 ~ 8000, default as 126.

this value more small, more sensitive to detect the vibration.

7.2.1.1 3 Set LOCK-701 VIP number

LOCK-701 support 5 VIP number. Mobile number should be less 15 figures, and add with country code, e.g. China country code 86, you need to put country code 86 or +86.

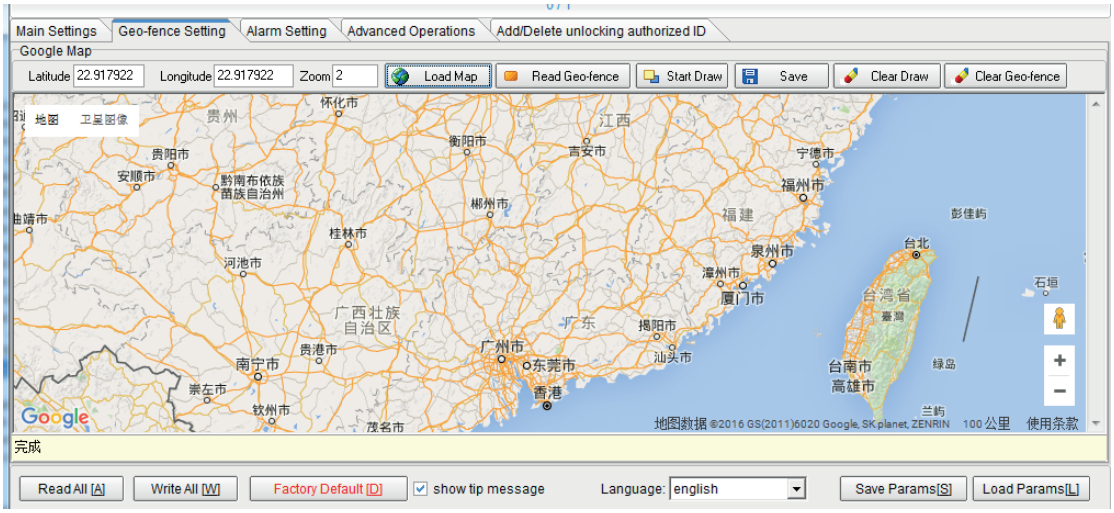
VIP numbers are used to send SMS command and received the SMS alarm.

Note:

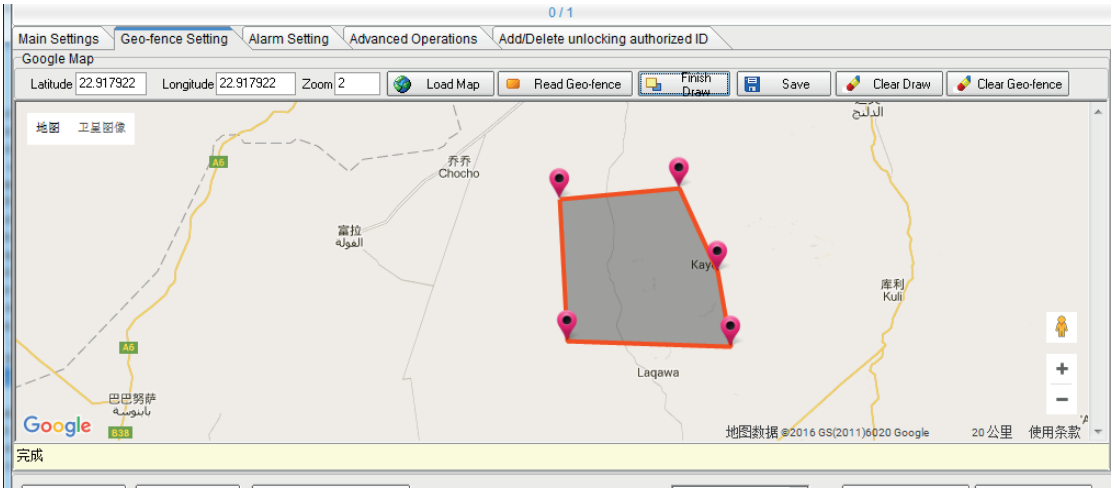
VIP number1 can get the SMS channel's GPS data and also SMS command or alarm.

7.2.3 Geo-fence setting

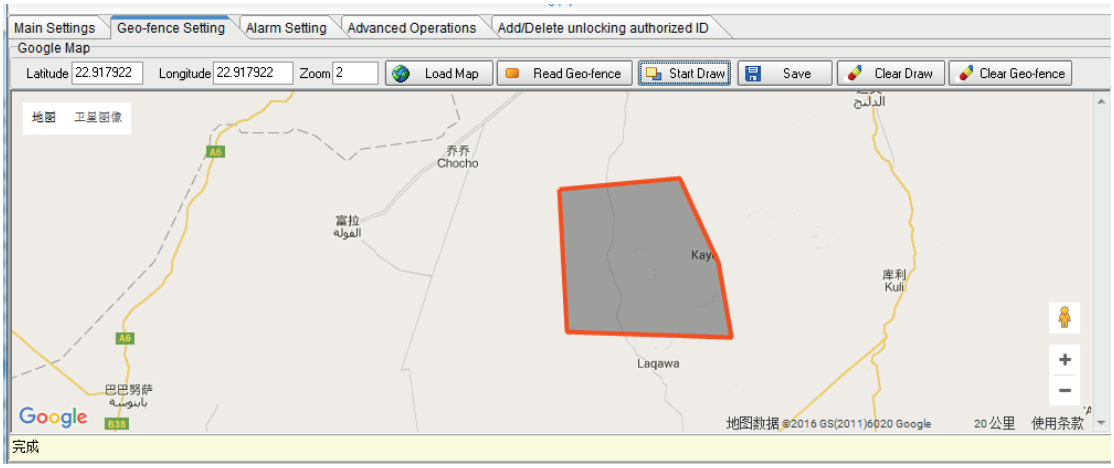
Step1: Click "Geo -fence setting" Click "Load map" to enter following interface.



Step2: Click “Start draw”, then left click corresponding area in the map as follows:



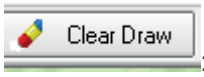
Step3: Click: “Finish drawing”, So finished the drawing and begin to save the setting later. Please refer follow picture.



Step4: Click “Save” button to save setting. S o the software will send geo-fence command to the LOCK-701 device.

Explanation about other buttons:

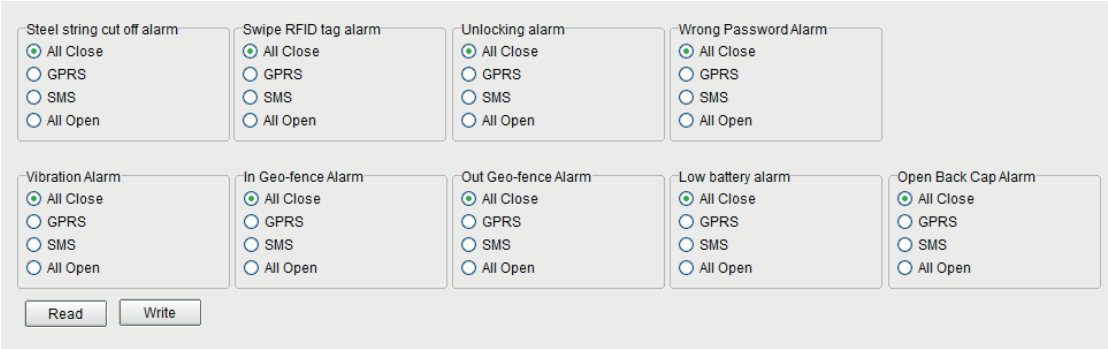
: Read the previous geo-fence setting in the map.



: When you draw the map in wrong area, you can click this button to clear this wrong drawing.

: When the geo-fence has been set and want to change, you can click this button to delete the geo-fence setting.

7.2.4 Alarm Switch setting



All Close indicates closed the alarm via GPRS /SMS channel.
GPRS indicates enable the alarm via GPRS, but no SMS alarm.
SMS indicates enable the alarm via SMS, but no alarm via GPRS channel
All Open indicates enable the alarm via GPRS /SMS

Read button : Read the previous alarm switch setting about this device.
Write button: Write and save the current setting to this device .

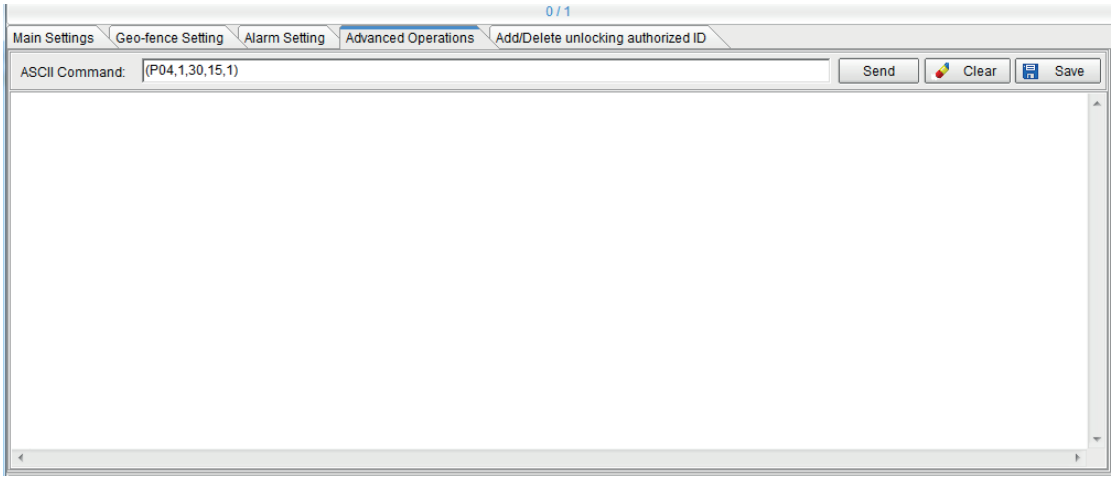
Note:

Wrong password alarm : when input more than 5 incorrect password, will trigger this alarm

7.2.5 Advanced Commands operation

If you're familiar wi th the LOCK-701 operation, we can start the initial settingof LOCK-701 via the USB port, web, SMS with the related configure software. Pls notice before set via SMS, you will need to set a VIP number firstly. If no this steps, the first SMS number will be automatically set as number VIP1.

Eg: To set inquiry/set transmission channel and uploading interval: inquiry commands (P04,0), set commands (P04,**1**,**30**,15,**1**) [PS: the first **1** is settled, **30** is the uploading time interval , 15 is the uploading time interval when vibrating, the second **1** is to choose transmission channel: 1 is GPRS, 0 is SMS]. You can send this commands via port, web, SMS after edited.



Note: keep the bracket and comma, all the character required to write under the English status!

The detailed format of the commands,Please refer to LOCK-701 protocol.

7.2.6 Locking and Unlocking Instructions

7.2.6.1 Devices and Status Instructions

Refer to 7.1 Basic Information Instructions:

device

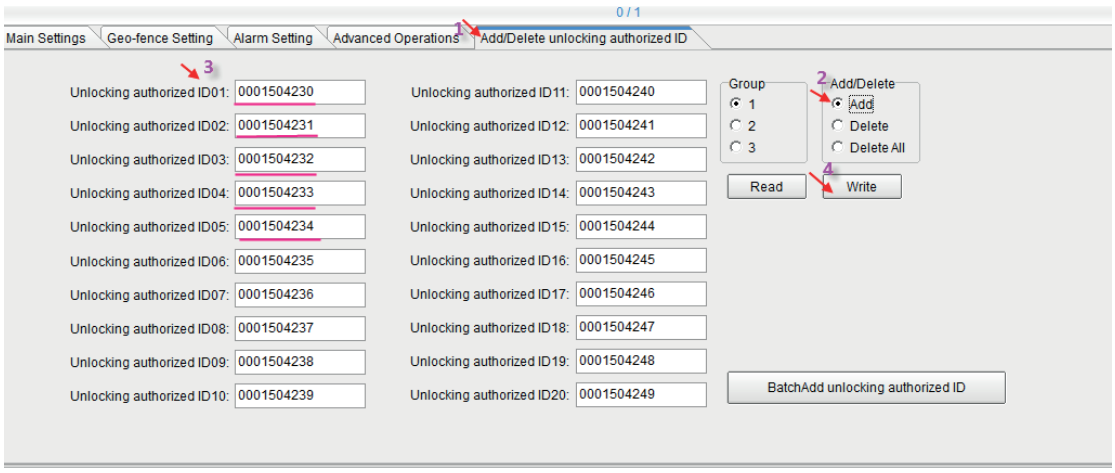
Steel string

RFID tags

Locking status

Unlocking Status

7.2.6.2 Add or Delete Unlocking Authorized ID



Step1: switch to " add/delete unlocking authorized ID"

Step2: click "add"

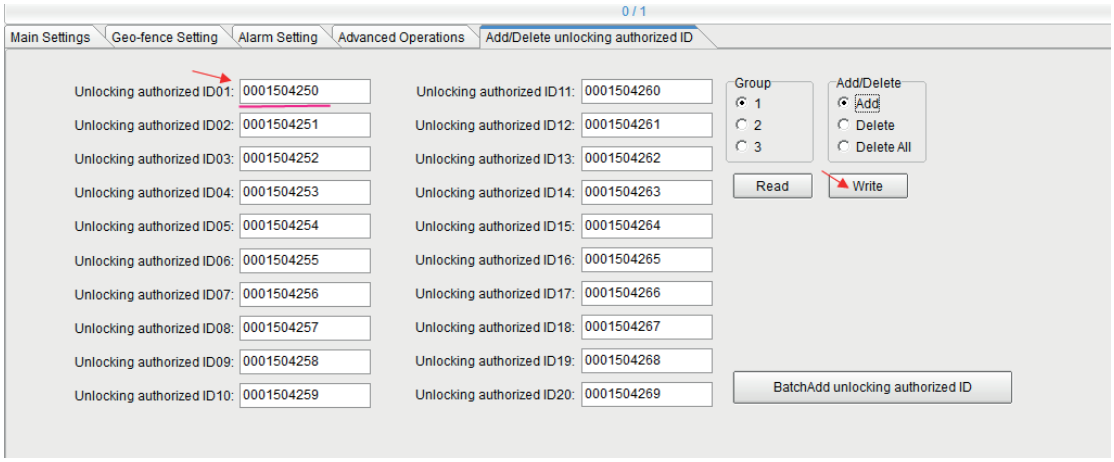
if click "delete" ,so delete the RFID tags at left table in device;

if click "delete all", so delete all previous authorized in flash of the device.

Step3: Input the RFID tag ID .10 digital numbers. 20 RFID tags.

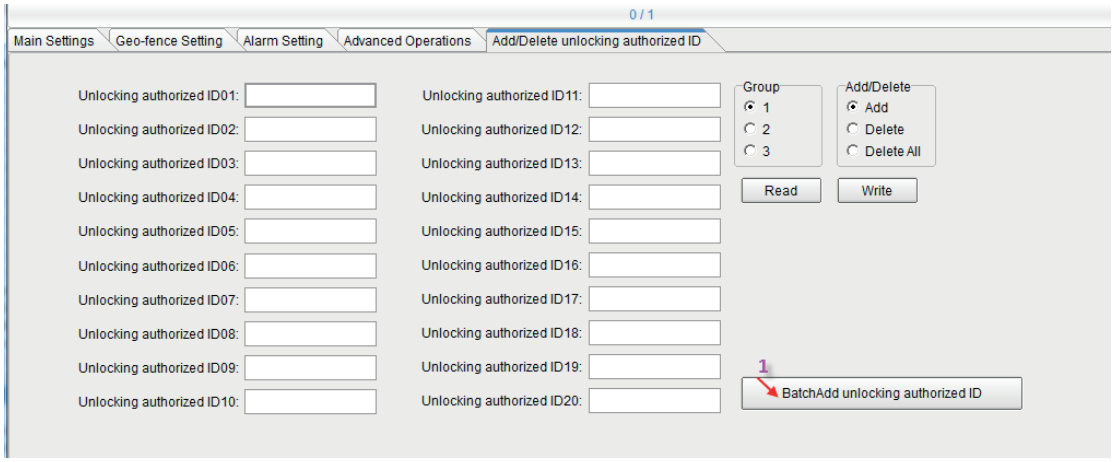
Step4: click "write" ,So add 20 RFID tags directly.

Step5: If you want to add more , Just Edit the left table again, input another 20 RFID tags, and click "write" ,So add another 20 RFID tags.



Finally, you can add 50 RFID tags, if add more, they will be ignored by this device.

7.2.6.3 Batch -Add Unlocking Authorized ID

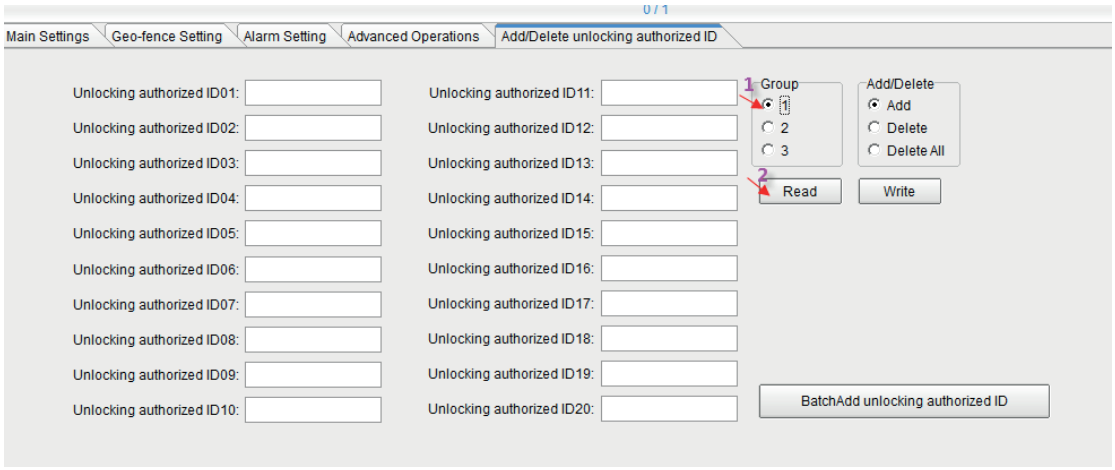


Step1: click " BatchAdd unlocking authorized ID" button

Step2:swipe RFID card one by one, hear "di" ,so the device record this card,and swipe the next RFID card until 50 RFID tags. Please do this work continuously, if don't swipe any RFID tags in 60 sec, the device will end this Batch-add operation automatically.

Step3: when swiped all RIFD tags ,click " Finished BatchAdd".button

7.2.6. 4 Read the existing Unlocking Authorized ID in device



Step1:Choose Group 1

Step2: Click "Read" button, So query the first group RFID tags in device;

choose group 2 or 3,So get the second and third group unlocking authorized ID in device.

8 Appendix

8.1 GSM Mo dule parameters

Specification	Parameter description
Power	VBAT 3.3V~ 4.6V, typical value 4.0V
Power consumption in saving mode	1.3mA@DRX=5 1.5mA@DRX=9
Frequency range	Quad band GSM800 、GSM900、DCS1800、PCS1900 Search frequency automatically Set choos ing frequency by AT command Meet GSM Phase 2/2+
Transmitting power	Class4 2W ：GSM800 和 GSM900 Class1 1W: DCS1800 和 PCS1900
GPRS connect features	Class Muti slot default class 12 Class Muti slot setting range: 1~12 GPPR Mobile table class B
Temperature range	Working temperature ：-35 ~+80 restricted working temperature ：-40 ~-35 和+80 ~+85 Storage temperature ：-45 ~+90
GPRS data features	GPRS data download transmission ：max 85.6kpbs GPRS data upload transmission ：max85.6kpbs Coding frame CS -1、CS-2、CS-3 和 CS-4 Support PAP(password authentification protocol) 8/10 of user PPP connection Built in protocol ：TCP/UDP/FTP/PPP etc Support Packet Broadcast Control Channel （PBCCH）
CSD circuit switching	CSD transmission rate ：2.4，4.8，9.6,14.4kbps not pass through Support unstructured supplementary service data （USSD）
Message（SMS）	Text and PDU form Message storage: SIM Card
SIM card slot	Support SIM card/USIM card:1.8V ，3V
Antenna connect port impedance	50 Ohm
Audio features	Speech coding mode： Half rate （ETS 06.20） Full rate （ETS 06.10） Enhanced full rate （ETS 06.50/06.60/06.80） Adaptive Mutirate （AMR） Echo Suppression noise suppression

	inbuilt AB audio power amplifier, and the max driver power is 800Mw
Serial port	Main serial port： full function serial port ： Used for AT command, GPRS data, and CSD data transmission uto -tunning baud rate: 9600bps~115200bps Used for firmware upgrading. Debug serial port： Only used for debuging
Contacts management	Support form：FM\ME\FD\ON\MT
SIM application tool	Support SAT Class3, GSM 11.14Release99
Real time clock	Support
Physical features	Size： 19.9*23.6*2.16mm Weight:3g
Firmware upgrade	Upgrade through main serial port.

8.2 GPS Module parameters

	Parameters
Receiver type	56 Channels GPS L1C/A SBAS L1C/A QZSS L1C/A
Modified Time of Acquisition data	

	MAX-7Q/W	MAX-7C
Cold start	29s	30s
Warm Start	28s	28s
Hot start	1s	1s
AUX start	2.5s	5s

Sensitivity

	MAX-7Q/W	MAX-7C
Tracking and navigation	-161 dBm	-160 dBm
Recapture	-160 dBm	-160 dBm
Cold start	-148 dBm	-147 dBm
Warm start	-148 dBm	-148 dBm
Hot start	-156 dBm	-155 dBm

Horizon location accuracy

Auto	2.5 m
SBAS	2.0 m

The accuracy of the time pulse signa	Rate-Monotonic Scheduling 30 ns

	99%	60 ns		
The frequency of the pulse signal	0.25 Hz --10 MHz (available for configuration)			
Max Navigation update rate	10 Hz			
Speed Accuracy	0.1 m/s			
heading precision	0.5 degree			
Operation limitation		acceleration of gravity	≤ 4 g	
		Maximum altitude	50,000 m	
		Maximum speed	500 m/s	