Monitoring 4 battery voltage 2AIN, 2DIN, 1 temperature.

# BMS 110 Battery Alarm System





# BMS110 User Manual

Ver 1.0

Date Issued: 2020-12-10 King Pigeon Hi-Tech. Co., Ltd.

www.IOT-Solution.com



### [Reminder-read before use]

With the rapid development of the Industrial Internet of Things, it has been widely used in various fields, but it involves a wide range of knowledge, from sensors, smart meters, gateways, 4G wireless communications, to cloud servers, large-screen displays, APP, etc. The professional knowledge of the user has higher requirements, so the electronic engineer is required to install it. We recommend that you read this article carefully, it will help you quickly and smoothly complete the product setup and implement your application. At the same time, it can save your precious time, no need to read content that has nothing to do with your application.

#### 1.Working Principle

Understanding the working principle of this product helps users quickly understand the working principle of the device, clarify ideas, and realize the functions of these applications.

#### 1) Working principle

This device collects the front-end battery pack voltage, oil level sensor, current transmitter and other data, and after logic processing the abnormal operation, it is sent to the mobile phone number set by the user via SMS or sent to the designated cloud server via the data network In, the cloud server identifies the relationship between the device and the user according to the unique number of the device, and at the same time pushes cloud data to the APP or WeChat official account bound to the user. The following is a schematic diagram of the work through the data network.



Working principle diagram

#### 2) Overview of component functions

Sensors, meters, actuators:

According to the types of transmitters and sensors supported by this device, select the appropriate model. There are many types of sensors. Please refer to 1.6 technical parameter description to confirm whether the selected sensor is suitable and whether the wiring is correct.

Cloud platform server:

To connect to the cloud platform, the device needs to set the server target address and port on the BMS110 device side, and then the device initiates the connection actively, and the cloud platform side also needs to set the BMS110 device parameters to receive the data sent by the BMS110 device. After the cloud platform server receives the data, it processes the data according to the rules, stores it in the database, and pushes it to the user. Mobile phone, computer:

First, register an account in the cloud platform and bind the corresponding BMS110 device, so that after the cloud platform receives the data uploaded by the BMS110 device, it can be processed and pushed to the corresponding mobile phone APP and computer users. Similarly, instructions sent by the mobile phone APP or computer will also be sent to the cloud platform first, and then the cloud platform will be pushed to the device.

#### 2. Setup steps overview

This product involves front-end sensors, logic processing of the device itself, cloud platform data management, APP, etc. Therefore, understanding the setting sequence and steps of this product will help

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## Battery Management Alarm System BMS100

users quickly and orderly set device parameters and connect to the cloud The platform realizes various application functions of users.

#### Step 1: Hardware settings

Set the local parameters, IO input and output wiring specifications, logical judgment and control, and cloud platform server communication parameter settings according to the manual;

# Step 2: Cloud platform settings [If you need to access the cloud platform server, set it on the cloud platform]

Set the relevant parameters of the device on the cloud platform to read the relationship between the device and the user, set the large-screen display content, cloud platform voice alarm, device and video monitoring association, cloud platform SMS alarm, cloud platform mailbox alarm, user management Functions such as permissions.

# Step 3: Download APP and bind WeChat [If you need to access the cloud platform server, you need to set it on the cloud platform]

Download the APP and bind the relationship between WeChat and the device. Test and complete the setting.

Therefore, in order to realize the device access to the cloud platform, it is necessary to set the parameters of the device separately and also set it on the cloud platform. The sequence is: set up the device first, and then set the parameters on the cloud platform.

### **UPGRADE HISTORY**

DATE	FIRMWARE VERSION	HARDWARE VERSION	DESCRIPTION
2020-12-20	V1.0		

This user manual has been designed as a guide to the installation and operation of BMS 100 battery management system Statements contained in the manual are general guidelines only and in no way are designed to supersede the instructions contained with other products.

We recommend the advice of a registered electrician before any Installation work.

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## **Table of Contents**

[Reminder-read before use]	
1. Brief introduction	6
1.1 Overview	
1.2 Application	6
1.3 Safety Instructions	7
1.4 Standard Packing List	7
1.5 Main Features	
1.6 Technical Specifications	
2. Hardware Description	
2.1 Dimension	
2.2 LED Indicator Light	14
2.3 Interface definition	
2.3.1 Analog input	15
2.3.2 Battery input	
2.3.3 Digital output	
2.3.4 Digital input	
2.3.5 RTD	20
2.3.6 Siren output	
2.3.7 Power input/ output	
2.4 Power switch/upgrade switch	
2.5 Sim Card	
2.6 Connect external antenna	
2.7 USB interface	
3. Installation	23
3.1 Wall mount	
3.2 DIN rail installation	24
4. Configuration	24
4.1 Preparation before configuration	24
4.1.1 Driver Installation	24
4.1.2 Search COM port	
4.1.3 Login configuration software	
4.2 Basic Information	
4.3 Number setting[If access to cloud platform, no need to set]	



5. SMS Function
6. Communication protocol
6.2 Modbus TCP protocol
7. Common Application examples
7.1 Quick verification device
7.2 Device connect analog transducer
7.3 Automatic control applications
7.4 Connect to cloud platform configuration, WeChat push applications54
7.5 Modbus slave application
8. Update Firmware
9. Warranty
10. Technical support
11. Appendix A SMS Command List
12. Appendix B Modbus Register Address67
13. Appendix D MQTT Application

## 1. Brief introduction

### 1.1 Overview

BMS110 module can realize 4 battery voltage, 2 analog quantity, 2 digital quantity and 1 temperature measurement, supports Modbus RTU over TCP and MQTT communication protocol,  $DC9 \sim 36V$  power supply.

It can be applied to various occasions where storage batteries are used as temporary backup power sources. It can measure  $0 \sim 5V$ ,  $4 \sim 20$ mA,  $0 \sim 20$ mA signals output by transmitters such as liquid level, temperature, current, etc., and manage the battery grouping in the computer room and the voltage of each group of batteries. Realize automatic monitoring of battery status, battery surrounding temperature, equipment water immersion, generator oil level, automatic control of inverter to stop working, respectively sending and collecting information to designated user numbers, remote opening of doors, etc. Realize remote information collection of occasions, notification of special personnel and remote control to open the door, so that sudden power outages can be handled faster.

### **1.2 Application**



Computer room battery management and monitoring;

Remote data acquisition and monitoring fields such as base station transceiver, ATM monitoring, power station monitoring, etc.;

Telecommunication BTS monitoring;

Solar battery monitoring;



### 1.3 Safety Instructions



#### **Safety Instructions**

Please do not use this product in places where the use of mobile phones is prohibited!

#### **Wireless Interference**

This product uses GSM / GPRS / 3G / 4G wireless network, please pay attention to wireless interference!

Before installing and using this device, please confirm whether the following materials are included in the product box:

### **1.4 Standard Packing List**

• 1x BMS110



• 1x 12bit 3.5mm female jack.



• 1x 14bit 3.5mm female jack.





• 1x USB to RS485 cable



1x AT-25 Antenna



Note: If the above items are missing or damaged, please contact King Pigeon sales.

#### Optional accessories (purchase separately)

• DIN35mm rail mounting bracket



### 1.5 Main Features

SSM/GPRS/3G/4G network communication, can be operated from anywhere, no distance;;



- Embedded ARM<sup>®</sup> Cortex<sup>™</sup>-M4 32-bit RISC core real-time operating system, software watchdog and hardware watchdog to prevent false crashes;
- Detect the solar cell voltage and the total voltage of the battery pack, 4 channels 0-15V input detection, the  $\geq$ total voltage is 0-60V;
- 2 digital inputs, compatible with dry contacts and wet nodes, NC logic level 0~0.5V, NO logic level 3~30V, and the first digital input can be used as a high-speed pulse counter, sampling frequency is 1MHz, and the second channel supports low-speed pulse counting function, which can be used for tampering alarm and flooding alarm;
- 1 relay output, with a capacity of 5A@250VAC or 5A@30VDC, which can be automatically controlled by timer or event correlation or remotely controlled by SMS, network, and can also be controlled by calling in within the authorized time period through an authorized number. It can be used for battery The group voltage is low to control the inverter to shut down, or link withage equipment;
- > 1 PT100 used to monitor the on-site ambient temperature , measurement range is -50 $^{\circ}$  C;
- 2 analog inputs, 12-bit resolution, support 0-5V, 4-20mA, 0-20mA output, can be used to detect battery pack load current and diesel generator oil level;
- Powerful SMS alarm module;  $\triangleright$
- ≻ 1 DC DC power output, no need to add a separate power adapter for the transmitter, saving wiring costs;
- Adopt a complete anti-dropping mechanism to ensure that the data terminal is always online, retransmit data when it is disconnected, and notify users of disconnected SMS;
- ≻ Support remote SMS restart device;
- > Support 10 user numbers to receive specific SMS alarm information triggered by equipment daily report, offline, abnormality, authorized user numbers can call in to control relay output within authorized time;
- Built-in powerful timer function, supports scheduled automatic reporting, scheduled SMS daily report, scheduled online, scheduled offline, scheduled restart, scheduled relay output, etc.
- Modular structure design, GSM/3G/4G network upgrade only needs to replace the module to realize the network upgrade;
- Support SMS, call, GPRS, 3G, 4G network data remote alarm;
- Support USB interface for parameter configuration, reading, historical record export and program upgrade through computer configuration software; support storage of 1600 fixed report supplementary transmission, 768 alarm supplementary transmission, and 10,000 historical record;
- Built-in high-performance and large-capacity rechargeable lithium battery, once the external power supply  $\geq$ fails, the customer can be notified by SMS at the first time, and the standby time is up to 5 hours;
- Embedded TCP/IP protocol stack, Modbus TCP protocol, Modbus RTU over TCP protocol, MQTT protocol, Golden Pigeon IoT RTU protocol, complete anti-dropping mechanism;
- Using industrial-grade chip, built-in watchdog, and has perfect anti-lightning and anti-interference measures to ensure reliability;
- Wall mounting or 35mm standard DIN rail mounting, multiple wiring methods, convenient for field installation and wiring.



## **1.6 Technical Specifications**

ltem	Parameter	Description		
	Power supply			
	voltage	9 ~ 36V DC, Power Requirements: DC12V@1A		
	Power			
	Consumption	Standby 80mA@12V		
Power		• 1 channel		
rower		● voltage: 9~36V DC (=input voltage)		
	Output	<ul> <li>Current: 1500mA@12V(Max)</li> </ul>		
	Power			
	Protection	Anti-reverse connection, ESD air: 15KV, surge: 4KV		
	Battery	3.7V/900mA		
USB		1*Mini USB		
	Qty	1		
	Туре	Dry contact and wet contact(NPN)		
		Close: short circuit		
	Dry contact	Open: open end		
Distigation		Close: 0-0.5VDC		
Digital input	Wet contact	• Open: 3-30VDC		
		Support DI0 as a high-speed pulse counter, sampling frequency: 1MHz;		
	Othor	Support DIT as a low-speed pulse counter, and the anti-shake time can be		
	protection	2KVrms		
	Qtv	1		
		Relay output, normally open, action output normally closed		
	capacity	5A@250VAC or 5A@30VDC		
Digital		Support DO can be controlled calling		
output	other	Support custom setting closing and opening time		
	Isolation	21/1/1/1/2010		
	protection			
	Qty	1		
Siren	Туре	12V DC		
Unen	Max output	500mA@12V		
	other	Support custom setting closing and opening time		
Analog Input	Qty	2 Channel		
	Input way	Differential input		
	Input type	4-20mA/0-20mA/0-5V		
	Resolution	12Bit		
-	Accuracy	±0.1% FSR @ 25 ℃		
		±0.3% FSR @ -10 and 60 ℃		



		±0.5% FSR @ -40 and 75 ℃		
	Sampling			
	frequency	200ms		
	Input			
	resistance	>1M ohms		
	Qty	1 Channel		
	Input way	2/3 wire		
	Measure			
	range	-50~300°C		
RTD	Resolution	12Bit		
		● ±0.1% FSR @ 25℃		
		● ±0.3% FSR @ -10 and 60 ℃		
	Accuracy	● ±0.5% FSR @ -40 and 75℃		
	Sampling			
	frequency	200ms		
	Qty	4		
	Input way	Differential input		
	Measure			
Battery	range	0~15V DC		
input	Resolution	12Bit		
	Accuracy	±0.2%FSR@25℃		
	Sampling			
	frequency	200ms		
	2G	GSM/EDGE: 850,900,1800,1900MHz		
	3G	GSM/EDGE: 850,900,1800,1900MHz		
		UMTS: 850,900,2100MHz		
		GSM/EDGE: 900,1800MHz		
	4G (L-E)	WCDMA: B1,B5,B8		
		FDD: B1,B3,B5,B7,B8,B20		
		TDD: B38,B40,B41		
Cellular		GSM/EDGE: 850,900,1800MHz		
network	4G(L-AU)	WCDMA: B1,B2,B5,B8		
		FDD: B1,B2,B3,B4,B5,B7,B8,B28		
	4G (L-A)	WCDMA: B2,84,85 FDD- B2 B4 B12		
	4G (L-V)	FDD: B4,B13		
		WCDMA: B1.B3.B8.B18.B19. B26		
	4G (L-J)	FDD: B2,B4,B12		
		TDD: B41		
ι	1			



		GSM/EDGE: 900,1800MHz				
		WCDMA: B1,B8				
	4G (L-CE)	TD-SCDMA: B34,B39				
		FDD: B1,B3,B8				
		TDD: B38,B39,B40,B41				
	SIM/UIM	Standard drawer interface, support 1.8V/3V SIM/UIM card, built-in 15KV ESD protection				
	MTBF	≥100,000 hours				
		EN 55022: 2006/A1: 2007 (CE &RE) Class B				
		IEC 61000-4-2 (ESD) Level 4				
		IEC 61000-4-3 (RS) Level 4				
Certification	EMC	IEC 61000-4-4 (EFT) Level 4				
		IEC 61000-4-5 (Surge)Level 3				
		IEC 61000-4-6 (CS)Level 4				
		IEC 61000-4-8 (M/S) Level 4				
	Other	CE,FCC,ROHS				
Environment	Working temp& humi	-45∼85℃,5∼95% RH				
Environmen	Storge temp& humi	-45~105℃,5~95% RH				
Others	Shell	metal				
	Size	105mm×88mm×30mm				
	Protection level	IP30				
	Net weight	250g				
	Installation method	Wall-mounted, rail-mounted				



## 2. Hardware Description

### 2.1 Dimension







### 2.2 LED Indicator Light



LED Indicator Light					
No.	Symbol	Name	Color	Status	Description
			red	Flick	2G:no signal(off 0.8s,on 0.2s);
	-11-			fast	3G/4G: no signal(off 2S,on 0.2s);
1	-1	4G signal		Flick	2G: normal (off 2S, on 0.2s);
	Redex fan fan I			slowly	3G/4G:normal (off 0.2S, on 2s);
				off	Communication module is abnormal
2	Dowor	Power	red	on	External power supply is normal
2	Fower	indicator		off	External power failure
2	3 Alarm	Alarm	red	on	Alarm triggered
3		indicator		off	No alarm
4	Dun	Running	red	Flashing	System is running
4	Rull	indicator		off	System stopped
5	Arm	Arm	rod	on	Arm
10 F	АШ	indicator	rea	off	Disarm



### 2.3 Interface definition

### 2.3.1 Analog input

#### Note:

According to the transmitter output type is current (mA) or voltage (V) type ,Generally used to connect the current transmitter for measuring the battery load and the liquid level sensor for detecting the oil level of the fuel tank. Set the DIP switch of the corresponding channel to the corresponding position on the device, as shown below.

Mode Selection				
NO.	Function		Description	
1		V	The first analog input type is set to "0-5V"	
1	AINU	mA	The first analog input type is set to "0-20mA" or "4-20mA"	
2 AI			Set the 2nd analog input type to "0-5	
	AIN1	V		
			V"	
		mA	The 2nd analog input type is set to "0-20mA" or "4-20mA"	



AIN				
NO.	Function	Description		
1	AIN0	The first analog input positive interface		
2	AIN1	The 2nd analog input positive interface		
3	AGND	No. 1 and No. 2 analog input negative interface		

#### Al internal interface principle diagram:



#### Al input wiring diagram:







Voltage type:







### 2.3.2 Battery input

Max connect 4 batteries, and the voltage of a single battery is 0-15V. It can read the voltage of each battery and the voltage of the total battery pack.



Battery Input				
NO.	Function	Description		
1	B0	The first battery voltage input negative port		
0	B1	The first battery voltage input positive interface /		
2		2nd battery voltage input negative port		
2	B2	2nd battery voltage input positive interface /		
3		The 3rd battery voltage input negative port		
4	B3	The third battery voltage input positive interface /		
4		The 4th battery voltage input negative port		
5	B4	The 4th battery voltage input positive port		

#### Wiring diagram:



### 2.3.3 Digital output

Support one DO (Relay) output, which can be connected to control door opening, control fan, control inverter to stop working, etc.



		DO
NO	Function	Description
1	Relay	Relay output



#### DO Internal interface schematic:



#### DO Wiring diagram:





For remote gate open

for inverter control

### 2.3.4 Digital input

2 DI can be connected to door sensor, anti-dismantling sensor, water immersion sensor, etc. Automatically trigger device alarms.



DIN			
NO	Function	Description	
1	DCOM	Common ground	
2	DI0	The first digital input, supports high-speed pulse counting, sampling	
2		frequency: 1MHz;	
3	DI1	The second digital input supports low-speed pulse counting.	



#### Note:

DI0 Support high-speed pulse counting, sampling frequency: 1MHz; DI1 Support low-speed pulse counter, anti-shake time can be set 1~2000ms.

#### DI Internal interface schematic:



#### **DI Wiring diagram:**



#### DI Wiring diagram(NPN sensor):





### 2.3.5 RTD

One PT100 temperature sensor is used to detect the environment or fixed-point temperature.

		COM RTD- RTD+
		RTD
		RTD
NO	Function	Description
1	RTD+	PT100 positive
2	RTD-	PT100 negative
3	СОМ	PT100 COM

**RTD Internal interface schematic:** 



#### RTD Wiring diagram:





### 2.3.6 Siren output

It supports 1 siren output, which can control the siren to light up at the same time as the upper and lower limits of temperature, the upper and lower limits of battery voltage, the current load is too high, and the DIN sensor triggers an alarm.



Siren				
NO	Function	Description		
1	+	Output positive		
2	-	Output negative		



### 2.3.7 Power input/ output

⊘ Ø	Ø Ø
VIN- VIN+	VO- VO+
9~36V	Vout

Power supply								
NO	Function	Description						
1	VIN-	The negative power input is used to power the device.						
2	VIN+	The positive power input is used to power the device.						
3	VO-	The negative power output is used to supply power to external devices.						
4	VO+	The positive power output is used to supply power to external devices.						



### 2.4 Power switch/upgrade switch

			OFF ON Power
			Power switch
NO	Function	Description	
1	OFF	Turn off	
2	ON	Turn on	
			work load
			Mode
		U	Ipgrade switch
NO	Function	Description	
1	work	Normal working	mode
2	load	Program upgrad	de mode

### 2.5 Sim Card

When inserting/removing the SIM card, make sure that the device is turned off first, insert the card-removing pin into the small hole of the card slot, and press it firmly to push the card slot out.





### 2.6 Connect external antenna



### 2.7 USB interface

The Mini USB interface can be used to connect the BMS110 and the PC, to set parameters, and to upgrade the firmware.



### 3. Installation

Support horizontal desktop placement, wall-mounted and rail installation,

### 3.1 Wall mount





### 3.2 DIN rail installation





Snap-in installation

Rail installation

### 4. Configuration

### 4.1 Preparation before configuration

A quick understanding of the entire setup process will help you quickly complete the setup of the entire device and avoid the problem of missed or misoperation causing setup failure. The following will explain the setup steps of the entire device, please read carefully.

#### Note:

When using an IoT card, it does not support sending and receiving text messages and voice dialing alarm functions, so there is no need to set the content related to tex messages; at the same time, when the device wants to access the cloud platform server please disable the SMS alarm and dialing functions, otherwise the device Frequent offline due to sending and receiving text messages and dialing.

#### 4.1.1 Driver Installation

If the USB driver of the device is already installed on the computer, you can skip this step.

Method 1: Download the configuration software and USB driver of BMS110 from www.iot-solution.com, then decompress and install;

Method 2: Scan the QR code card in the product box to download the configuration software and USB driver of the BMS110, then decompress and install;

Method 3: Download the universal driver, such as "Drive Life", etc., and install it on the computer, and then scan the hardware to install the driver.



### 4.1.2 Search COM port

Right-click [My Computer], click "[Properties]> [Device Manager]> [Port]", if the connection is normal and the driver installation is normal, it will display Silicon Labs CP210x USB to Uart Bridge, as shown below (local port The number is COM4):



### 4.1.3 Login Configuration software

Turn on the device, run the configuration software "BMS110\_Configuration Software.exe" on the computer, select the correct COM port, which is the port number displayed in the [Device Manager], enter the password (default 1234), and click [OK], as shown in the figure below Shown:

22 	Choose Port		
	COM4 Password (Default1234)	Ŧ	Refresh
	****		
	ОК( <u>О</u> )		Cancel( <u>C</u> )

Select Sim card type and click "Enter Setting", after successful login, the software interface is shown in the following figure:



Select SIM Card Category	
Normal SIM Card(Call and	d SMS) 📄 IOT M2M SIM Card(Data only
	ter Setting

After successful login, the software interface is as shown in the figure below:

Basic Information	parameter settings	<u>*</u>					
Parameter setting	Modify password Old pa	issword:	Synchro	e: 2020-02-22 00:00	0:0C ~		
Output Settings	New p. Confirm	assword: password:	Read t	he Write the	Read the computer		
Relay setting		Modify	- KIO U	ite itto une			
Incoming control	Basic information Device ID 1	(1~247) Model	No. BMS110	Version 2EA	10		
Access Control Settings	Device Description		(60 Char	acters) IMEI 869	14104752902		
Input Settings	Add timestamp to	alarm SMS					
DIN Trigger setting	Timer Reporting SMS	Content Settings additional information in t	he report SMS	Set All			
AIN Trigger setting	AIN0	GSM/3G Signal	DINO	🗌 DO0	Battery		
AIN Alarm setting	AIN1	External Power	DIN1	DO1			
Battery Trigger setting	Arm Status	Device					
Battery Alarm setting	Alarm SMS Content Se	ettings additional information in t	he alarm SMS	Set All		Save	
Timing Settings	AIN0	GSM/3G Signal	DIN0	🗌 DO0	Battery	D 1	
	AIN1	External Power	DIN1	🗌 DO1		Read	
Periodic Timer	Arm Status	Device					
Interlock Settings							
Interlock Setting							
Network settings							
Cellular network setting							
History Record							
C226							

In the software interface, users can perform operations such as writing configuration, reading configuration, and changing passwords.

The steps to modify the configuration are as follows:

1.Modify in the current interface;

2.Click the "write" button in the upper right corner of the current page, click "OK" in the pop-up dialog box, when the red "write successful" appears, it means the modification is successful;

3.After all modifications are completed, please shut down and restart the device (turn the power switch to "OFF" and then back to "ON").



### 4.2 Basic Information

Note: When accessing the cloud platform, the [Automatic report setting] item and [Alarm SMS setting] item may not be set.

Through this page, users can quickly configure the basic information of the device, including modifying the device password, synchronizing the device time, device ID number, device description, the content of the regular SMS report, and the content attached to the alarm SMS when an alarm occurs. details as follows Run the BMS100 configuration software on the computer, select the correct COM port, that is, the port number displayed in [Device Manager], and click [Open], as shown below:

BMS110 Configurator V1.0							- 🗆 X	
🐔 Load Profile 🔺 Export Profile 📲 Default 🛛 Li	anguage About							
E	parameter settings	<u>*</u>						
Parameter setting	Modify password Old p	assword:	Synchrone	ous machine time 2020-02-22 00:00	- JO:			
Number setting	New p	assword:	Time zone	:: (UTC+08:00)	Read the			
Relay setting	Commi	Modify	RTU tim	e RTU time	computer			
E Incoming control	Basic information Device ID 1	(1~247) Model N	No. BMS110	Version 2EA	10			
Access Control Settings	Device Description		(60 Charao	ters) IMEI 869	14104752902			
Input Settings	Add timestamp t	o alarm SMS						
DIN Trigger setting	Timer Reporting SMS	Content Settings additional information in th	e report SMS	et All				
	AIN0	GSM/3G Signal	DINO	DO0	Battery			
AIN Alarm setting	AIN1	External Power     Device	DIN1	🔲 DO1				
Battery Trigger setting	Arm Status	Device						
Battery Alarm setting	Alarm SMS Content S	ettings g additional information in the	e alarm SMS 🗌 S	et All		Save		
Timing Settings		GSM/3G Signal	DIN0		Battery	Read		
Periodic Timer	AIN1     Temperature     Arm Status	External Power     Device     Device		DO1				
Interlock Setting								
Cellular network setting								
History Record								
instery record								

Modify Password@Basic information					
Item	Description	Default			
Old password	Enter old password	null			
New password	Enter new password	null			
Confirm password	Confirm password	null			
Modify	Click to valid				

Synchronize machine time@Basic information					
ltem	Description	Default			
Time	Display/select device current time				
Time zone	Display current time zone				
Read RTU time	After clicking, it will read the RTU time and display it				
Write RTU time	After clicking, the current computer time and time zone				



		will be written into the RTU	
Read	the	Read computer current time	
computer			

Basic information@Basic information						
ltem	Description	Default				
	When used in Modbus protocol as the local device ID	1				
Device ID	address, range: 1-247	1				
Model NO.	Device model automatically read					
Version	Automatically read device version number					
Device	After setting the description content, the alarm message	null				
description	will be accompanied by device description information.	nun				
IMEI	Automatically read device module IMEI number					
Add timestamp to	ticked, the text message content will be accompanied	tickod				
alarm sms	by time information	lickeu				

Time reporting SMS content setting@Basic information							
ltem	Description	Default					
	After checking the following options, if the selected item						
Add the following	is set for timing event, it will be sent to the authorized						
additional	number of the alarm receiver. Set it on the "Number	untick					
information in the	Settings" page to achieve the timing of SMS reporting. A	UTUCK					
report sms	condition: set timed SMS reporting, there is a tick option						
	here, and there are alarm receivers who can receive						

Alarm sms content setting@Basic information								
ltem	Description	Default						
Add the following additional information in the alarm sms	After ticked, when the selected item and other items alarm, the status of the item will be sent to the alarm receiver together	untick						

#### Number setting[If access to cloud platform, no need to set] 4.3

Note: When using IoT card, it does not support sending and receiving SMS and voice dialing alarm functions, so there is no need to set the content related to SMS; at the same time, when the device is to access the cloud platform server, please disable the SMS alarm and dialing function, otherwise the device will Sending and receiving text messages and dialing leads to frequent offline. No need set.

You can quickly configure the user number and its corresponding authority, such as which event alarm information to receive, details as follows:

#### KING PIGEON



## **Battery Management Alarm System BMS100**

ЦΧ

uage <mark>Abo</mark>ut

Load Profile	🚽 Export Profile	Pefault Default	Language
🗉 🧑 Basic	Information		parame
-@	Parameter setting		Au
	Number setting		
Outp	ut Settings		
	Relay setting		
ncon	ning control		
	Access Control Set	tings	
nput	Settings		
	DIN Trigger setting	1	
<u> </u>	DIN Alarm setting		
	AIN Trigger setting		
	AIN Alarm setting		
	Battery Trigger set	ting	
	Battery Alarm settin	ng	
E Timin	g Settings		
	Hour Timer		
	Periodic Timer		Noti
Interi	ock Settings		2. Lo
	Interlock Setting		3. 11
inetw	ork settings		
	- Decend	ung	
- IISTO			

thorized User Te	elephone Number Sett	ings						
	(Alarm <mark>N</mark> o.)	Power On	Timer Report	Low )isarm Signal 3	Power Lost	Power Recovery	GPRS Failure	Relay Switch
User No.0					$\square$			
User No.1								
User No.2								
User No.3								
User No.4								
User No.5								
User No.6				Ξ				
User No.7				Ő				
User No.8				8				
User No.9				8				
						Read	Sa	ive

Notice: 1. Alarm No. can include or non-include country code, e.g.:in UK,can setup 0044 or +44 or without country code,but can not be 44. 2. Low signal alert: Mobile signal lower than 14 (full signal is 31). 3. Tick it stands for when the event occurrence, will send SMS to the related telephone numbers.

Number setting								
Item	Description	Default						
User No	Used to set the receiving alarm number, supports 10							
	When the device is turned on, it sends a boot message							
Power on	to the number, including the device model, version							
Foweron	number, device description, device status, cellular							
	network signal value, IMEI and other information							
	Tick it, after setting the timed reporting of SMS events							
Timer Report	and reporting content, the SMS content to be reported							
	will be sent to this number at the set time							
	When the signal value is lower than 14, send sms to							
	notify the phone number							
Arm/disarm	When the device changes the arm and disarm status,							
	send a sms to notify this phone number							
Power lost	If the external power supply is lost, send SMS to notify							
	this number							
Power recovery	When the external power supply is restored, send sms							
	to notify this number							
GPRS failure	If you fail to connect to the server 3 times, will be							
	notified by SMS							
	This is the main switch for relay displacement SMS.							
Relay switch	After a certain relay "reset SMS" is checked, a SMS will							
	be sent to notify this number							



### 4.4 Output setting

**Note:** When accessing the cloud platform, the channel name, variable SMS, closing description, and disconnect description items no need set.

Through this page, you can quickly set the characteristics of the relay output, such as setting the purpose of the relay, the length of time the relay is closed, the number of times of closing, and the interval between each time.

This device supports 1 relay output, rated range: 5A/30VDC, 5A/250VAC. It can be set to call in by the authorized number for control, or remotely controlled by SMS, or automatically controlled by timer, event association, or remotely controlled by the monitoring center or cloud platform. Meet most of the applications and the application requirements of automatic control.

BMS110 Configurator V1.0									17 <u>11-17</u>		×
🕌 Load Profile 🛛 Export Profile 📲 Defa	ault Language About										
Basic Information	parameter settings	Relay setting	<u>*</u>								
Parameter setting		Channel Name	Close Time (s)	Repeat Time	Interval Time(s)	ON/OFF SMS	Alarm Verify Time(s)	Open Description (MAX.30)	Close Description (MAX.30)	n	
Output Settings	Dout0 Switch on/off Siren	×	0	0	0		0				
<ul> <li>Incoming control</li> <li>Access Control Settings</li> <li>Input Settings</li> <li>DIN Trigger setting</li> <li>DIN Alarm setting</li> <li>AIN Trigger setting</li> <li>AIN Alarm setting</li> <li>Battery Trigger setting</li> <li>Battery Alarm setting</li> <li>Timing Settings</li> <li>Hour Timer</li> <li>Periodic Timer</li> <li>Interlock Settings</li> <li>Interlock Settings</li> <li>Network settings</li> </ul>	<ol> <li>If the Close Time sett.</li> <li>If the Close Time sett. then open,and repeat</li> <li>Only the first Channel</li> <li>If the Output Type set</li> <li>If the Output Type set</li> <li>If the Output Type set</li> <li>Alarm Verify Time: If</li> <li>Alarm Verify Time: If</li> <li>the RTU will not send</li> </ol>	up as 0, this channel w up as not 0, this chann t this action according I (DO0) can be setup a tup as Switch ON/OFF tup as Siren, then this d Interlock page. Imme, Repeat Times and tick the ON/OFF SMS I SMS to alert the user	ill output NC ty to the Repeat 7 ss Door Open fr. , then this corr Open fr. , then this corr of the channel will be r 4 Alarm Verify T alert function,ar s.	pe. and t C type ar imes aft unction, s unction, s unct	he Interval d the rela er the Inte ee Access e used as: iiren,and w es range fr ay closing	Time and y will close rval Time t Control pi a switch. vill be activ om 0 to 99 or openin	Repeat Times ca according to the imeout. age. ated according t 999. g time less than	in not be edited. e Close Time o the settings the verify time,	Read		Save

Output setting							
ltem	Description	Default					
	• <b>Open door</b> :: after enabling, the channel will close						
	after the authorized number calls in and the						
	device will be automatically set to the arming						
Output type	state;	switch					
	• Switch on/off: relay as a common switch, can be						
	used as normal timing events, linkage events,						
	SMS control to use.						
Siron	the unique function channel will be closed after the						
Silen	audio function in the "input settings" page is triggered						
Channel name	User defined channel name, used for channel	null					
	description when SMS alarm.						
Class time	Channel close time, unit: seconds. 0 means	0					
Close time	always close						



Repeat time The number of times that the relay is repeatedly closed when the relay action is performed.						
	That is to say, the timing starts after each closing and	0				
liste must time a	breaking, and the interval is how long to close again.					
Interval time	When combined with "times", it can achieve the result					
	of pulse output, unit second.					
	The original SMS number will be sent to the user	Not				
	when the status changes.	selected				
Al	After the relay is shifted, the alarm will be delayed for	2				
Alarm verity time	a period of time.					
	It is used to describe the status of "disconnection" in	empty				
Open description	the content of SMS when [displacement] alarm is					
	given.					
Close description	It is used to describe the "closed" state in the SMS	empty				
Close description	content when [displacement] alarm is given.					

### 4.5 Access Control[If access to cloud platform, no need to set]

Through this page, the user can quickly set the authority number and authorization period of the call in control. This function brings great convenience to the remote control of the electronic lock in the unattended computer room. It can remotely authorize a maintenance personnel to open the door by calling in with their own mobile phone within a limited period of time, which solves the traditional problem of taking and delivering keys and cumbersome approval process. Of course, you can also set various parameters of this page through SMS, cloud platform and monitoring center.

The number is the phone number corresponding to the serial number on the [Number Settings] page. When you call the mobile phone card number in the device during the start time and end time period, the device will automatically perform actions on relay 0 according to the preset parameters, such as Relay 0 is connected to the electric control lock to achieve the effect of opening the door, and the device will automatically disarm. If permanent is checked, it will be permanently effective regardless of the termination time.

asic Information	parameter settings	Number setting	Relay setting 🖈	Access Control Settin	ng 然		
Parameter setting	Access Control	Charle Marco		Fred Serve			
Number setting		start time		End time			
output Settings	User No.0	2000-01-01 00:00	~	2000-01-01 00:00		Always	
Relay setting	User No.1	2000-01-01 00:00	~	2000-01-01 00:00		Always	
	User No.2	2000-01-01 00:00	~	2000-01-01 00:00		Always	
	User No.3	2000-01-01 00:00	~	2000-01-01 00:00		Always	
Access Control Settings	User No.4	2000-01-01 00:00		2000-01-01 00:00		Always	
put Settings	User No.5	2000-01-01 00:00		2000-01-01 00:00		Always	
DIN Trigger setting	User No.6	2000-01-01 00:00		2000-01-01 00:00		Always	
DIN Alarm setting	User No.7	2000-01-01 00:00	~	2000-01-01 00:00		□ Always	
AIN Trigger setting	User No.8	2000-01-01 00:00	~	2000-01-01 00:00	<b>m</b> +	Always	
AIN Alarm setting	User No.9	2000-01-01 00:00	~	2000-01-01 00:00		Always	
Battery Trigger setting			~				
Battery Alarm setting				Re	ad	Save	
imina Settinas	Notice:						
Hour Timor	<ol> <li>Valid time set as "</li> <li>Valid with Start an</li> </ol>	Always" means the User can ca d End time means the User ca	all to open the door w n call to open the doo	ithout limitation. In on the duration only.			
Periodic Timer							
iterlock Settings							
Interlock Setting							
letwork settings							
Cellular network setting							
istory Record							



Access control								
Item	Description	Default						
Number (0-9)	Phone number corresponding to serial number in	Not						
	[number setting] page	selected						
Start time	Set the start time of user number call in permission							
End time	Set the end time of user number call in permission							
Always	After checking, the corresponding user number can call	Not						
	in and open the door at any time	selected						

### 4.6 Input Setting

Through this page, users can quickly configure the purpose and parameters of digital input, such as deployment and deployment, pulse counting, displacement monitoring and triggering alarm, etc.

### 4.6.1 DI trigger setting

Note: when the IOT network card is used, the functions of sending and receiving SMS and voice dialing alarm are not supported, so the content related to SMS does not need to be set; at the same time, when the device wants to access the cloud platform server, please prohibit the SMS alarm and dialing function, otherwise the device will be offline frequently because of sending and receiving SMS and dialing.Do not set this page, the content in this box will not be prompted below.

Note: when accessing the cloud platform, the items of [alarm SMS ], [restore SMS ], [ change SMS ], [Interval alarm SMS] and [Total alarm sms] can not be set.

This device supports 2 digital inputs , compatible with wet and dry contacts, sampling frequency 200ms, logic level when wet contacts: 0~0.5V is NC, +3~30V is regarded as NO. Contains 5 uses: "Disable", "NO", "NC", "Counting" and "Change", which can be flexibly combined for monitoring of multiple needs to meet the needs of different applications. The first digital quantity can be used for high-speed pulse counting with a sampling frequency of 1MHz, and the second one supports low-speed pulse counting.



Basic Information	paranti	ster settings		a seconder of theray	setting 22 4 Access c	ontrol setting 27	Dire trigger se				
Number setting		Input Type	Channel Name	Alarm SMS	Recovery SMS	Change SMS	Current Status	Recovery Alarm	Alarm Verify Time(s)	Siren	
Output Settings	DINO	NO	-				Close		2		
Relay setting	DINI	10	1			10	duu			_	
Incoming control	DINI	NO					Close		2		
Access Control Settings	Pu	lse Counter		Interval Alarm		Т	otal Alarm				
Input Settings			Initial Value	Value	Interval Alarm St	NS V	/alue	To	tal Alarm SMS		
	DI	OCounter	0	0		0					
DIN Alarm setting				(MAX.999999)		(1)	1AX.999999)				
AIN Trigger setting				1.1		T					
AIN Alarm setting			Initial Value	Value	Interval Alarm SN	VIS V	otal Alarm /alue	Tot	al Alarm SMS		Anti-shake time
Battery Trigger setting	DI	1Counter	0	0		0					0
Battery Alarm setting				(MAX.999999)		(1)	IAX.999999)				(MAX.65535)
Timing Settings	-										
Hour Timer	Notice	: v DIN0 can k	e used as Pulse C	ounter		Ge	t Current Value	Re	ead	Save	Clear Counter
Periodic Timer	2. Onl	y DIN1 can b	e used as Arm/Di	sarm Switch.	and an almost	L					
Interlock Settings	4. Sire	in: In armed	mode, active then	drive the Siren channe	el to work. Must setup one	e of the output channe	el as Si				
Interlock Setting	5. 24H 6. Alar	r: Any time, m verify time	active will arise ala e values range froi	irm. m 0 to 9999.							
Network settings											
Cellular network setting											
Central network setting											
History Record											

#### Note:

- 1) Select the corresponding type in the configuration software according to the NO and NC input
- 2) type of the detector. If it is not clear, please Consult the detector manufacturer;
- 2) Please refer to 2.3.4 DI typical wiring diagram for wiring mode.

DI settings @ input settings								
ltem	Description	Default						
	• <b>Disable</b> : after selection, the digital input will be disabled.							
	• NO: after selection, the equipment will think that the							
	normal state of the digital input is normally open,							
	and the normally closed state is an abnormal event.							
	• NC: after selection, the equipment will think that the							
Input type	normal state of the digital input is normally closed,							
	and the normally open state is an abnormal event.							
	• Change: after selection, the device will think that							
	every change of the digital input state is an							
	abnormal event.							
	• <b>Counter</b> : after the counter is selected by DI0 ~ 1,							
	the input pulse can be counted.							
Channel name	User defined channel name, used for channel							
	description when SMS alarm.							
Alarm SMS	You can customize the content of SMS sent after alarm em							
Restovery SMS	You can customize the content of SMS sent after alarm	empty						
	recovery							



Change SMS	You can customize the content of SMS sent after	empty
	displacement alarm	
Current value	Current status of digital input	
Restore alarm	In the deployment or 24-hour attribute, alarm recovery	Not
	will send the content of recovery alarm SMS.	selected
Alarm Verify time	When the alarm is enabled, an alarm will be given if the	1
	time exceeds this time, and the unit is seconds.	
Siron	When arm will output siron	Not
Sileli		selected

Counter @ DI settings							
ltem	Description	Default					
Countor	Ticked to enable the counter function	Not					
Counter		selected					
Initialvalue	DI0 $\sim$ 1 is used as the initial value of counting.	empty					
Interval alarm	A short message alarm will be generated every time the	empty					
value	interval value is counted,						
Interval alarm	When the count interval alarm is generated, the content	empty					
SMS	message will be sent to the authority number.						
Total alarm value	The count value will be cleared to the starting value	empty					
	automatically						
	When the generation count reaches the maximum	empty					
Total alarm sms	value, the content message will be sent to the						
	permission number.						
	Unit: MS, the default value is 1, which means that the	1					
Anti shake time	maximum sampling frequency is 1kHz; when the pulse						
	frequency is low, properly increasing the anti jitter time						
	can improve the accuracy.						
	(pulse sampling frequency = 10000 anti jitter time, such						
	as 1ms corresponding to 1000Hz, 10ms to 100Hz,						
	100ms to 10Hz, 1000ms to 1Hz)						

#### 4.6.2 DI alarm setting

Through this page, users can quickly set the characteristics of alarm number after digital input triggers alarm, such as sending short messages, dialing telephone numbers to different authorized personnel, so as to achieve the purpose of directional and rapid alarm of special personnel.

# 

## Battery Management Alarm System BMS100

BMS110 Configurator V1.0

Parameter setting       Number setting       put Settings       Relay setting       oming control       Jaccess Control Settings       User No       at Settings       DIN Trigger setting       JIN Alarm setting       JIN Alarm setting       JIN Alarm setting       Jattery Trigger setting       User No       Jattery Trigger setting	(DIN Alarm nel DINO 5.0 – – 5.1 – – 5.2 – – 5.3 – – 5.4 – – 5.5 – –	Send SMS) DIN1	Clear Set All	(DIN Alarm DINO	Dial Out) DIN1	Clear Set All	
Number setting     Image: Control Settings       Relay setting     DIN Cham       ming control     User No       Access Control Settings     User No       at Settings     User No       DIN Alarm setting     User No       AIN Trigger setting     User No       AIN Alarm setting     User No       Battery Trigger setting     User No	(DIN Alarm hel DINO 5.0	Send SMS) DIN1  DIN1 DIN1	Clear Set All	(DIN Alarm DINO	Dial Out) DIN1 DIN1 DIN1 DIN1 DIN1 DIN1 DIN1 DIN1	Clear Set All	
put Settings DIN Cham Relay setting DIN Cham oming control User No Access Control Settings User No at Settings User No DIN Alarm setting User No AIN Trigger setting User No AIN Alarm setting User No Battery Trigger setting User No	nel DINO 50		Clear Set All			Clear Set All	
Relay setting     DIN Cham       pring control     User Nc       Access Control Settings     User Nc       at Settings     User Nc       DIN Trigger setting     User Nc       DIN Alarm setting     User Nc       AIN Trigger setting     User Nc       AIN Alarm setting     User Nc       Battery Trigger setting     User Nc	x0		Clear Set All			Clear Set All	
oming control     User No       Access Control Settings     User No       at Settings     User No       DIN Trigger setting     User No       AIN Trigger setting     User No       AIN Trigger setting     User No       Battery Trigger setting     User No	50 L 51 L 52 L 53 L 54 L 55 L		Set All			Set All	
Access Control Settings User No st Settings User No DIN Trigger setting User No AIN Trigger setting User No AIN Trigger setting User No AIN Alarm setting User No Battery Trigger setting User No	5.1 L		Set All			Set All	
t Settings User No DIN Trigger setting User No DIN Alarm setting User No AIN Trigger setting User No AIN Alarm setting User No Battery Trigger setting User No	5.2 L						
DIN Trigger setting User No DIN Alarm setting User No AIN Trigger setting User No AIN Alarm setting User No Battery Trigger setting User No	5.3 L						
DIN Alarm setting User No AIN Trigger setting User No AIN Alarm setting User No Battery Trigger setting User No	5.5 D						
AIN Trigger setting User No AIN Alarm setting User No Battery Trigger setting User No	5.5						
AIN Alarm setting User No Battery Trigger setting User No							
Battery Trigger setting User No	o.6						
battery mgger setting	.7						
User No	.8						
Battery Alarm setting							
ing Settings							
Hour Timer							
Periodic Timer 1. Tick it stands 1	or when the DIN alarm, v	vill send SMS	or dial the relat	ed user telephone	numbers.		
rlock Settings 2. While dialing t dial the next us	he user telephone numbe ser number.	er, each numb	er will wait max	20seconds, if not a	answer will		
Interlock Setting						1	
work settings					Read	Save	
Cellular network setting							
ory Record							
History Record							
	DI alarm	setti	ngs @	input s	etting	IS	

Item	Description						
DIN channel	Including DI0, DI1						
DIN alarm	Indicates that the column number has the ability to	Tick					
send SMS	receive the number input alarm SMS of the column.						
DIN alarm	Indicates that the column number has the alarm dial for	Tick					
dial out	receiving the number input of the column.						

#### 4.6.3 AIN trigger setting

Through this page, users can quickly configure the purpose and parameters of analog input, such as temperature monitoring, current monitoring, voltage monitoring, power factor monitoring, oil level monitoring, etc.Users can set the high and low limit alarm threshold value and recover the alarm according to the needs. When the limit is exceeded or recovered, personalized notification can be set to specific users to realize the purpose of fast warning to the responsible person.

The device supports 2 analog input, 12 bit resolution, 200ms sampling frequency, 0-5V, 0-20mA, 4-20mA output sensor. It can be flexibly combined for measurement and monitoring of various requirements to meet the needs of different applications. Such as three-phase current and voltage monitoring and so on.

**Note:** the input type of AI requires:

- According to the output type of the transmitter, set the correct Ma and V type on the device dial switch. Please refer to 2.3.1 mode selection and 2.3 Al wiring diagram;
- 2) The same input type should be set in the configuration software;
- 3) For the max and min range, please refer to the transmitter technical specification or consult the transmitter manufacturer.



In addition, the device supports a PT100 input for monitoring the site environment. The temperature measurement range is -  $50 \sim 300$  ° C.

BMS110 Co	nfigurator V1.0												-	a x
🖲 Load Profile	e 🍝 Export Profile 📑 Default	Lang	guage	Abo	out									
Bas	ic Information	param	ieter se	tting	s 🖄 histo	ry record 🖄 🛛 AIN	V trigger setting 熬	DIN alarm setti	ng 🖍					
	Parameter setting		Input T	ype	Channel Name	High Alarm SMS	Low Alarm SMS	Recovery SMS	Maximum	Minimum	Current Value	Threshold High	Threshol Low	d Recover Alarm
	put Settings	AIN0	0~5V	~					5	0	0	0	0	
T.a	Relay setting	AIN1	0~5V	~					5	0	0	0	0	
	2 ming control	Temp.	Disabl	e ~					80	-40	28.67	0	0	
Ť@	Access Control Settings													
🖃 🕡 🕼 Inpi	ut Settings	Notice							Ge	t Current Va	lue	Read		Save
C Tim C Tim C Inte C Inte Inte C Inte C Inte C Inte C Inte C Inte C Inte C Inte C Inte	DIN Alarm setting AIN Trigger setting AIN Alarm setting Battery Trigger setting Battery Alarm setting ing Settings Hour Timer Periodic Timer rlock Settings Interlock Setting work settings Cellular network setting ory Record History Record	1. Маз 2. Мес 3. Alar 4. Oth 5. Alar		Forr the s	mat: High/Low/Re same as DIN.	covery Contect Alarm	Current Value.							
СОМЗ					Ec	uipment model:BMS	110							

**Note**: when accessing the cloud platform, the items of [high alarm sms], [low alarm sms], [recover SMS ] no need set.

Al trigger settings @ input settings						
Item	Description	Default				
	Disable: do not use this channel					
	Enable: use this channel					
	0 ~ 5V: used to connect sensors with output type of 0 ~					
Input type	5V	Diachla				
input type	0 ~ 20mA: used to connect sensors with output type of	Disable				
	0 ~ 20mA					
	4 ~ 20mA: used to connect sensors with output type of					
	4 ~ 20mA					
Channel name	User defined channel name, used for channel	empty				
	description when SMS alarm.					
	When the current value is higher than the upper limit	empty				
High alarm sms	value, the setting SMS content will be sent to the					
	permission number.					
	When the current value is higher than the upper limit	empty				
Low alarm sms	value, the setting SMS content will be sent to the					
	permission number.					
Recovery sms	If the recovery alarm is checked, when the current value	empty				


	returns to the normal level, the SMS content of the	
	setting will be sent to the authority number	
Maximum	Maximum range of sensor	empty
Minimum	Minimum range of sensor	empty
Current value	Refers to the current real value read out, such as the	
	pressure is xxxpa, or the temperature is XXX $^\circ\!{ m C}.$	
Throphold high	When the current value exceeds the upper limit of	ompty
Threshold high	alarm, an alarm will be triggered;	empty
Throshold low	When the current value is lower than the alarm upper	omntv
	limit value, an alarm will be triggered;	empty
Basayary alarm	When the duty returns to the normal range, the authority	Not
	number will be informed by SMS.	selected
Alorm vorify time	In case of alarm, the alarm will only be given if the	1
	duration exceeds the set time,	1
Siren	When arm will output siren	Not
		selected

#### 4.6.4 AIN alarm setting

Through this page, users can quickly set the characteristics of the alarm number after the analog input triggers the alarm, such as sending short messages, dialing telephone numbers to different authorized personnel, so as to achieve the purpose of directional and rapid alarm for special personnel.

Basic Information	parameter settings	<u>1</u>	history re	ecord 🖄 🛛 AIN	I trigger setting :	<b>/</b> ×  D	IN alarn	n setting 🖄	AIN alarm setting 🖄		
Parameter setting		(AI	N Aları	m Send SMS)		(All	N Aları	m Dial Out)			
Number setting	AIN channel	AINO	AIN1	Temp.		AINO	AIN1	Temp.			
Output Settings	init channel	Allino			Clear	Airio			Clear		
Relay setting	User No.0				Set All				Set All		
Incoming control	User No.1										
Access Control Settings	User No.2										
	User No.3										
input Settings	User No.4										
DIN Trigger setting	User No.5										
DIN Alarm setting	User No.6					$\square$	$\square$				
AIN Trigger setting	User No.7					$\square$					
AIN Alarm setting	User No.8	$\square$	$\checkmark$								
Battery Trigger setting	User No.9	$\square$		$\checkmark$							
Eattery Alarm setting     Timing Settings     Hour Timer     Periodic Timer     Interlock Settings     Network settings     Cellular network setting     History Record     History Record	Notice: 1. Tick it stand: user telephe 2. While dialing not answer	s for when one numbe y the user the will dial the	the AIN rrs. telephon e next us	alarm occurrence e number,each nu er number.	, will send SMS o	r dial the	Rea related nds,if	ıd	Save		



Item	Description	Default
Analog channel	Including AI0, AI1, temperature	
AI alarm send sms	It indicates that the column number has the ability to receive the alarm message of analog input of the column.	Check
Al alarm dial out	Indicates that the number of the column has received the analog alarm dialing of the column.	Check

### 4.6.5 Battery trigger setting

This device supports 4 channels 0~15VDC battery input.

Basic Information	AIN trigger setting 🛃	X DIN alarm	setting 🖄 🛛 AIN aları	m setting 🖄 🛛 🛛	Battery Trigger Se	ettings 熬	Battery Alar	m Settings 🌶	$\times$	
Parameter setting	Battery quantity	0	~							
Output Settings		1 2	Low Alarm SMS	Recovery SMS	Current Value	Threshold High	Threshold Low	Recovery Alarm	Alarm Verify Time(s)	Sire
Relay setting	Bat1	3 4			0	0	0		2	
Incoming control	Bat2				0	0	0		2	
Access Control Settings	Bat3				0	0	0		2	
Input Settings	Bat4				0	0	0		2	
DIN Trigger setting	Total Voltage				0	0	0		2	
DIN Alarm setting										
AIN Trigger setting     AIN Alarm setting     Battery Trigger setting					Get Current Valu	e l	Read	Save		
AIN Trigger setting     AIN Alarm setting     AIN Alarm setting     Battery Trigger setting     Battery Alarm setting     Timing Settings     Hour Timer     Periodic Timer     Interlock Settings					Get Current Valu	e   1	Read	Save		
AIN Trigger setting     AIN Alarm setting     AIN Alarm setting     Battery Trigger setting     Battery Alarm setting     Timing Settings     Hour Timer     Periodic Timer     Interlock Settings     Interlock Setting     Network settings					Get Current Valu	e 1	Read	Save		
<ul> <li>AIN Trigger setting</li> <li>AIN Alarm setting</li> <li>Battery Trigger setting</li> <li>Battery Alarm setting</li> <li>Battery Alarm setting</li> <li>Timing Settings</li> <li>Hour Timer</li> <li>Periodic Timer</li> <li>Interlock Settings</li> <li>Interlock Setting</li> <li>Network settings</li> <li>Cellular network setting</li> </ul>					Get Current Valu	e	Read	Save		

**Note**: when accessing the cloud platform, the items of [high alarm sms], [low alarm sms], [recover SMS ] no need set.

Battery trigger setting@input setting									
Item	Description	Default							
Battery quantity	0~4 can be set, according to the number of connected	0							
High alarm sms	When the current value is higher than the upper limit value, the setting SMS content will be sent to the permission number.	empty							
Low alarm sms	When the current value is higher than the upper limit value, the setting SMS content will be sent to the permission number.	empty							
Recovery sms	If the recovery alarm is checked, when the current	empty							



	value returns to the normal level, the SMS content of						
	the setting will be sent to the authority number						
Current value	Refers to the current real value read out, such as the						
Current value	pressure is xxxpa, or the temperature is XXX $^\circ\!\!\mathbb{C}.$						
Threshold high	When the current value exceeds the upper limit of	amentu					
Threshold high	alarm, an alarm will be triggered;	empty					
Throphold low	When the current value is lower than the alarm upper	omntv					
Threshold low	limit value, an alarm will be triggered;						
	When the duty returns to the normal range, the authority						
Recovery alarm	number will be informed by SMS.	selected					
Alorm vorify time	In case of alarm, the alarm will only be given if the	1					
Alarm verity une	duration exceeds the set time,						
	When relay 1 is output as alarm signal and connected						
Siron	with alarm signal, in case of alarm, relay 1 will be	Not					
SIIEII	regarded as connected to alarm switch and perform	selected					
	closing action.						

#### 4.6.6 Battery alarm setting

Through this page, users can quickly set the characteristics of the alarm number after the analog input triggers the alarm, such as sending short messages, dialing telephone numbers to different authorized personnel, so as to achieve the purpose of directional and rapid alarm for special personnel.



Battery alarm setting@ input settings									
ltem	Description	Default							
Battery channel	Including Bat1, Bat2, Bat3, Bat4, total voltage								
Battery alar	n It indicates that the column number has the ability to	Check							



send sms	receive the alarm message of this battery.	
Battery alarm dial	Indicates that the number of the column has	Chook
out	received the battery alarm dialing of the column.	Check

### 4.7 Timer Setting

Through this page, users can quickly set the device to automatically execute certain actions at a preset time, so as to achieve the purpose of automatic control and automatic execution of actions according to the predetermined time, which can effectively reduce human participation and greatly improve efficiency. For example, start water pump regularly, discharge sewage regularly, start exhaust fan regularly, timing switch equipment and so on.

In addition, the device provides a variety of timing functions, which can meet the application needs of most places. For example, it can execute some action at a certain time every day and every week, and from a certain preset time point, interval a certain preset time, and then perform a certain action periodically. A total of 10 timing events can be set.

#### 4.7.1 Hour timer

BMS110 Configurator V1.0										3 <b>-</b> 74	٥	×
🐔 Load Profile 🛛 Export Profile 🛛 🌉 Default	Language A	bout										
Basic Information	DIN alarm	setting 🖄	AIN tr	igger setting 🖈	AIN ala	rm setting 🖄	Battery Trigger Settings Ҟ	Battery Alarm Settings 🖈	Clock timer 🜌			4 >
Parameter setting	ClockTime	rBox1										
Number setting		Weekly		Hour		Minute	Action					
Output Settings	1	Sunday	~	00	~ 00	~	Reboot	~				
Relay setting	2	Sunday	~	00	~ 00	~	Reboot	~				
- The control	3	Sunday	~	00	~ 00	~	Reboot	~				
Access Control Settings	4	Sunday	~	00	~ 00	~	Reboot	~				
- Input Settings	5	Sunday	~	00	~ 00	~	Reboot	~				
DIN Trigger setting	6	Sunday	~	00	~ 00	~	Reboot	~				
DIN Alarm setting		Sunday	~	00	× 00	~	Reboot	<u> </u>				
AIN Trigger setting		Sunday	~	00	~ 00	~	Reboot	~				
AIN Alarm setting	10	Sunday	~	00	~ 00	~	Reboot	~				
Battery Trigger setting												
Battery Alarm setting							Read Save					
Timing Settings												
Hour Timer												
Periodic Timer												
interiock setting												
Network settings												
Cellular network setting												
History Record												
History Record												

Hour Timer								
ltem	Description	Default						
1 10	For timore 1 10	Not						
1-10		selected						
Weekly	Set up Monday to Sunday or every day.							
Hour	Specific hours set							
Minute	Set the specific minutes							
Action	The specific action to be executed at the set time.							



#### 4.7.2 Periodic timer

Basic Information	DIN alarm set	tting 🖄 🔰	AIN trig	ger setting	🖍 (×	N alarm set	ting 🖄	Battery Trigger S	Settings 🖄 🛛	Battery Alarm Settings 🖈	Clock timer 🖄	Second timer 🖄 💶
Parameter setting	Periodic Tin	ner										
Number setting	🗹 Ena	ble/Disable	Set	t automatic i	upload GP	RS data cycl	e	60 S				
Output Settings		Weekh	,	Но	ur	Mir	ute	Interval(s)		Action		
Relay setting		Sunday	8)	00		00		0	Pahaat			
Incoming control		Sunday	~	00	~	00	~	0	Reboot	~		
Access Control Settings	3	Sunday	~	00	~	00	~	0	Reboot	~		
Input Settings	4	Sunday	~	00	~	00	~	0	Reboot	~		
DIN Trigger setting	5	Sunday	~	00	~	00	~	0	Reboot	~		
DIN Alarm setting	6	Sunday	~	00	~	00	~	0	Reboot	~		
AIN Trigger setting	7	Sunday	~	00	~	00	~	0	Reboot	~		
AIN Alarm setting	8	Sunday	~	00	~	00	~	0	Reboot	~		
Battery Trigger setting	9	Sunday	~	00	~	00	~	0	Reboot	~		
Battery Alarm setting									<b>b</b> d	Caus.		
Timing Settings									Read	Save		
Hour Timer	Notice 1. From	n the Start Tir	ne,ever	y xxSeconds	excute the	e choose act	ion.					
Periodic Timer	2. Inte	rval time rang	je is 0∼	9999 Second	ds.							
Interlock Settings												
Interlock Setting												
Network settings												
Cellular network setting												
-DOL												
History Record												

	Periodic timer	
ltem	Description	Default
Periodicially auto upload GPRS data	When the GPRS/3G/4G data network transmission protocol is the King Pigeon IoT RTU protocol, the GPRS/3G/4G data reporting cycle time is enabled by default, and the unit: minutes.	5
1-10	For timers 1-10	Not selected
Weekly	Set up Monday to Sunday or every day.	
Hour	Specific hours set	
Minute	Set the specific minutes	
Action	Device restart, automatic SMS report, pulse count reset, save historical data	

### 4.8 Interlock setting

Through this page, users can quickly set up to 40 kinds of automatic logic control functions, which can meet the automation control needs of most applications. It is triggered automatically according to preset conditions without human intervention, the device automatically performs predetermined actions, and will notify the user by SMS or network data. On the one hand, it saves time and reduces losses, on the other hand it improves work efficiency. For example: it can be set to automatically start the exhaust air cooling device when the temperature is too high, and automatically shut down the exhaust air cooling device when the temperature is restored, or start the diesel generator when the current and voltage are low, and when the current and voltage are high, Stop the diesel generator, or turn off the water pump when the water pressure is high, start the water pump when the water pressure is low, and so on.



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	00 0	1 1/1 0	
S BINISTI	U Contigu	rator VI.0	

Basic Information	AIN alarm setting	Battery Trigger Settings 🖈	Battery Alarm Settings 📩	Clock timer 🖍	Second time	Association settings 🕺	
Parameter setting	Event:	Arm	~				
Number setting	Action:	Reboot	~	Add	Delete		
Relay setting							
Incoming control	Event	,	Action				
Access Control Settings							
Input Settings							
DIN Trigger setting							
DIN Alarm setting							
AIN Alarm setting							
Battery Trigger setting							
Battery Alarm setting							
Timing Settings							
Hour Timer							
Interlock Settings							
Interlock Setting							
Network settings	Clear						
Cellular network setting		Custom in	nterlock settings,Max.40				
History Record				Read	Sa	ve	
History Record							

Interlock settings								
ltem	Description	Default						
Event	It includes: "Arm","Disarm" "DI0-1 trigger", "DI0-1 recovery", "DI0-1 pulse interval alarm", "DI0-1 pulse total number alarm", "AI0-1 high alarm", "AI0-1 low alarm", "AI0-1 recovery", "temperature high alarm", "temperature Low alarm", "temperature alarm recovery", "humidity high alarm", "humidity low alarm", "humidity alarm recovery".,"Battery 1-4 trigger", "Battery 1-4 recovery", "Battery 1-4 high alarm","Battery 1-4 low alarm", "Total voltage high alarm ","Total voltage recovery"							
Action	It includes: "Reboot", "DO0 close", "DO0 open","Arm", "Disarm", "Opendoor", "Siren".							
Add	Click to add the selected settings							
Delete	Click to delete the selected settings							



#### 4.9 Network setting

#### Note:

If the device is connected to the KingPigeon cloud platform, please follow the following steps:

1) Click to connect [King Pigeon cloud 2.0] or [King Pigeon cloud 3.0]; King Pigeon cloud 2.0 Login URL: www.my-m2m.com;King Pigeon cloud 3.0 Login URL:http://kpiiot.com

- 2) If it is connected to [King Pigeon cloud 2.0], please contact the sales representative for the [login message], and fill in the corresponding box in the Login message;
- 3) If it is connected to [King Pigeon cloud 3.0], please contact the sales representative for the [login message], and fill in the corresponding box.
- 4) Click write to complete the parameter settings for accessing the cloud platform. Then turn off the device, turn the [set run] switch to the [run] side, and then turn on the device again to complete the device access cloud platform setting operation. There is no need to read other contents in this section.
- 5) Read the "Access King Pigeon cloud user manual" and operate on the cloud platform

This page is used to configure the function parameters of the device accessing the Internet.Rich automatic handshake registration package, custom heartbeat package, offline mechanism and other functions make the device quickly compatible with a variety of third-party PC systems and cloud platforms. The device can communicate with the monitoring software or cloud platform in the Internet through the GPRS/3G/4G wireless cellular network. It includes the following ways:

Modbus RTU protocol: Modbus RTU over TCP, the Modbus RTU protocol is transmitted over the TCP 1) link to realize the two-way communication between the equipment and the upper computer, such as access KPIIOT V3.0 Cloud platform; Domain Name: modbusrtu.kpiiot.com, port number: 4000.

2) Modbus TCP protocol: before and after the standard Modbus RTU protocol message, the header and tail of TCP are encapsulated to realize the two-way communication between the device and the upper computer, such as access KPIIOT V3.0 Cloud platform; Domain Name: modbusrtu.kpiiot.com, port number: 4000.

King pigeon IOT RTU protocol: transmit the King pigeon IOT RTU protocol over the TCP link to realize 3) the two-way communication between the equipment and the upper computer. The advantage of this communication protocol is that when the equipment is abnormal, it can send data to the upper computer immediately, instead of waiting for the upper computer to ask.It avoids the defects of the first two protocols, such as access WWW.RTU-M2M.COM cloud platform. (The server is currently fully loaded and no new equipment is involved)

Through the mqtt protocol: Running the mqtt protocol on the TCP link to realize the two-way 4) communication between the device and the host computer. The advantage of this communication protocol is that when the network is offline, the data will be cached, and when the network recovers, it will be re released to realize the supplementary transmission of historical data. For example, access to www.my-m2m.com cloud platform; Domain Name: mqtt.dtuip.com, port number: 1883.



BMS110 Configurator V1.0						- 0	×
🛋 Load Profile 🛛 Export Profile 🛛 🌉 De	f <mark>aul</mark> t Language About						
Load Profile     Export Pro	tault Language About parameter settings  King Pigeon cloud 3.0 Cellular Network Settings Communication Protocol Protocol Access Point Name APN User Name APN Password	Ilular network settings 🔊	her IOT server (Max60) (Max60) (Max60)	Server 1 IP/DNS Server Listen Port Server 2 IP/DNS Server Listen Port Heatbeat Interval	modbusrtu.kprtu. 4000	com (0-65535) (0-65535) (1-99995)	(Ma
			No Por	ance Percent Times	3 ~	(1-0)	
DIN Alarm setting			No Kesp	onse Resend Times	<u> </u>	,1-9)	
AIN Trigger setting	Message Settings						
AIN Alarm setting	Login Message	ASCII ~	(Max	60)			
Battery Trigger setting	Login ACK Message	ASCII 🗸	(Max	60)			
Battery Alarm setting							
Timing Settings	Heartbeat Message	ASCII 🗸 req	(Max	60)			
Hour Timer	Heartbeat ACK Message	ASCII v res	(Max	60)			
Periodic Timer	Login Message Strategy	0.Send Once When Login Servery	×		_		
Interlock Settings     Interlock Settings     Original Interlock Settings     Original Interlock Settings     Original Interlock Settings     Original Interlock Setting     Original Interlock Setting     Original Interlock Setting     Original Interlock Setting	PIs fill in the login mess	提示 age(device Dackage, please cont Contact + 867552 Fill in the registration	ill in the registration pack tact Golden Pigeon Sales 1886 for a registration p n package and click Write	Age.For the registration Representative. ackage; to restart the device 确定	Read	Sav	re

Communication protocol @ network settings							
Item	Description	Default					
Communication	Options are "disable", "Modbus RTU Protocol", "IOT	Disable					
protocol	RTU Protocol", "Modbus TCP Protocol", "mqtt Protocol".	Disable					
Protocol	Optional TCP	TCP					
Access point name	APN access point of mobile operator	empty					
User name	Internet user name of mobile operator	empty					
Password	Access password of mobile operator	empty					

Server settings @ network settings							
ltem	Description	Default					
Server 1 IP/DNS	Domain name or IP of target server 1	modbusrtu. kprtu.com					
Server listen port	Target server port 1	4000					
Server 2 IP/DNS	Domain name or IP of target server 2	empty					
Server listen port	Target server port 2	empty					
Heartbeat interval	Heartbeat packet sending interval, unit: seconds.	300					
No Response Resend Times	The number of response packets will be re registered and no response packets will be sent.	3					
Server connection strategy	Select "prefer server 1". When server 1 fails to connect, it will automatically connect to server 2	Prefer server 1					



Registration package strategy @ network settings							
ltem	Description	Default					
Login message	It is the registered handshake protocol package on the	IMEI+0					
	server side						
	Once set, device need response within 10 seconds						
	after device send login message,otherwise it will						
Login ACK	continue send login message according to	omntu					
Message	"Reconnection Times" ,still not response will offline	empty					
	once time, then try to reconnect, according to "Server						
	Offline 3 Times, Device Reconnection Time".						
Heartbeat	After setting, the device will send heartbeat packets	omntv					
message	according to the heartbeat packet time.	empty					
	Once set, device need response within 6 seconds after						
	device send heartbeat message, otherwise it will						
Heartbeat ACK	continue send login message according to	empty					
message	"Reconnection Times", still not response will offline	chipty					
	once time, then try to reconnect, according to "Server						
	Offline 3 Times, Device Reconnection Time".						
	Include options: "send once when logging in", "before						
	adding each packet of data", "include both of the						
	above".Send once when logging in: it means that after						
	the TCP link is established, the registration packet will						
	be sent once, and it will not be sent again; before	Send					
Strategy	adding each packet of data, it means that after	once on					
Chalogy	establishing the TCP link, it will not be sent, and when	login					
	there is data transmission, the registration packet will be						
	added before each header; both of the above two items						
	include: the first two items are carried out at the same						
	time.						

MQTT settings @ network settings						
ltem	Description	Default				
Subscribs topis	The topic that the device subscribes to when it	empty				
	receives control data	empty				
Publish topic	Topic when the device publishes information	empty				
Mqtt client ID	Serial number of the device, unique	omety				
	identification	empty				
Matt usor pamo	The account of the device to publish the	ompty				
Mqu user name	theme on the proxy server	empty				
Matt personal	The device publishes the password for the	ampti				
Mqtt password	subject at the proxy server	empty				
Automatic data	The time interval for the device to upload data	60 seconds				



upload cycle	regularly, with a maximum of 10 seconds	
	When enabled, the historical cache data	
	during network disconnection will be	Disable
retransmission	retransmitted when the network is restored	

### 4.10 Historical record

The device is built-in 2M EEPROM, which is used to store the alarm record and history record of the device. If you need to record the history of the device, you need to set the interval time for saving the history record in the [Periodic timer] page. The alarm record does not need to be set separately, and the device will automatically save it.

The device will automatically manage the historical records. When there is no available space in the memory, it will automatically delete the previous data and retain the latest half of the historical data. In addition, users can export the data to the computer for permanent storage. The details are as follows:

Basic Information	parameter setti	ings 🖄	history record 1	🔀						
O Parameter setting     Number setting     Output Settings     Relay setting     Incoming control     Access Control Settings	Event Record	Total:5	Read All	O Read record	~ 1	Clear	Read	Export	Delete device record	
DIN Trigger setting DIN Trigger setting DIN Alarm setting AIN Trigger setting AIN Alarm setting Battery Trigger setting Battery Alarm setting										
Timing Settings Hour Timer Periodic Timer Interlock Settings										
Network setting	Notice: 1. Total can save 2. If the memory	e 200 events ir y full, will remo	the internal mer we the earlier 10	nory. 0 events.						

Historical record						
Item	Description	Default				
Total	All records					
Read all	Check to read all records in the device	Tick				
Pood record	After ticked you can customize the filter record	Not				
Reau lecolu		selected				
Clear	That is to clear the screen, first clear the display on the	empty				
	screen.					
Read	Read history	empty				
	Click this button to export to CSV format file for analysis					
Save as CSV	and view.					



Delete device	Click this button will clear the device history data,	
records	please use it with caution!	

### 4.11 System

The export and import function can quickly configure the same parameters for multiple devices. Restoring the factory function will restore the equipment to the factory settings.

### 4.11.1 Export configuration file

Click the "export configuration file" button at the top left of the page (as shown in the figure below), then select the path and enter the file name.

This function is convenient for users to save the configuration parameters of the device and configure multiple devices in batch.



### 4.11.2 Load Configure File

Click the load profile button at the top left of the page (as shown in the following figure), and then select the file to load.



After a while, you will see the window "loading configuration information succeeded".

Notice		×	
	Loading configuration success!		
		King Pigeon Hi-Tech. Co., Ltd.	Ver 1.0
	确定		



### 4.11.3 Default

When the device is in power on state, connect the computer configuration software, and reset it through the restore factory settings button of the configuration software. This function will restore all parameters of the device to the factory default initial values. If you forget to set the password, please contact King Pigeon Hi-Tech. Co., Ltd., website<u>www.iot-solution.com</u>.



### 5. SMS Function

1. The default password of the host computer is 1234, which can edit SMS instructions to modify the password to ensure the safety of use;

2. The "password" in the SMS instruction refers to the device password, such as 1234, which can be input directly;

3. The "+" sign in the SMS instruction is not used as the content of SMS. Please do not add any spaces or other characters;

4. SMS instructions must distinguish between capital letters, such as "PWD" instead of "PWD";

5. If the password is input correctly and the command is wrong, the host will return a message: "the command format is wrong, please confirm!" at this time, please check whether the Chinese and English input method or case is correct;

6. If the password is wrong, no information will be returned;

7. The host will return the confirmation message after receiving the SMS instruction. If there is no return message, please check whether the password is correct and whether the signal is normal.



### 6. Communication protocol

The device supports the access to the server or SCADA or cloud platform in the Internet through the gprs/3g/4g wireless cellular network.Modbus RTU over TCP protocol, Modbus TCP protocol and Golden Pigeon RTU protocol.Users can quickly connect the device to the third-party cloud platform or server.



Device network topology

### 6.1 King Pigeon IoT RTU Protocol

If the user needs the device to actively send alarm data when it detects an abnormality, or the device actively sends data to the server periodically, this communication protocol can be selected. In the [Communication Protocol] on the [Network Settings] page, you must select [IoT RTU Protocol] or [Defined Protocol], [Connection Mode]: [TCP], and set the domain name or IP and port. Other parameters can be set according to the needs of the server. For the detailed definition and explanation of "KingPigeon IoT RTU Protocol", please refer to "KingPigeon IoT RTU Protocol". At present, the mainstream protocols are MQTT, Modbus RTU and other protocols, and the King Pigeon IoT RTU protocol is generally not used.

### 6.2 Modbus TCP protocol

Device can connect to server or cloud to build TCP connection automatically via GPRS/3G/4G networks. After building TCP connection, server or SCADA or cloud can send Modbus TCP command to device for Modbus TCP communication.

### 6.3 Modbus RTU over TCP protocol

After device switched on, automatically connect to server or cloud to build TCP connection via GPRS/3G/4Gnetworks. Users can set handshake protocol, login message, heartbeat or other parameter according to cloud server. After TCP connection, server or SCADA or cloud can send Modbus RTU command to device, to build Modbus RTU networks which based on TCP connection.



### 6.4 MQTT protocol

This device supports standard mqtt protocol and Modbus RTU to mqtt, which is convenient to access the platform. Please check the relevant informationAppendix D Application of mqtt

### 7. Common Application examples

This section introduces several common applications for users' reference, so as to quickly complete the product configuration and installation.

### 7.1 Quick verification device

1. Turn on the device, run the configuration software, select the port and enter the password to log in. In the basic information page, click "[Read Computer Time]-[Write RTU Time]" to complete the device time setting. As shown below:

🕸 BMS110 Configurator V1.0							_	×
🕌 Load Profile 🛛 Export Profile 📲 Default	Language About							
₽	parameter settings	<u>*</u>						
Parameter setting	Modify password Old pa	ssword:	Synchron Tim Time zon	e: 2020-02-22 00:00	- 20:0			
Output Settings	Confirm	password: Modify	Read t RTU tir	ne Write the ne RTU time	Read the computer			
Incoming control	Basic information Device ID 1	(1~247) Model I	No. BMS110	Version 2EA	10			
Access Control Settings	Device Descriptior	alarm SMS	(60 Chara	octers) IMEI 869	14104752902			
OIN Trigger setting     OIN Alarm setting	Timer Reporting SMS	Content Settings additional information in th	e report SMS	Set All				
AIN Trigger setting	AIN0	GSM/3G Signal External Power Device	DIN0	D00	Battery			
Battery Trigger setting Battery Alarm setting	Arm Status	U Device ttings additional information in th	e alarm SMS	Set All		Save		
Hour Timer Periodic Timer	AIN0 AIN1 Temperature Arm Status	GSM/3G Signal External Power Device Device		D00	Battery	Read		
Interlock Settings      Onterlock Setting      ONetwork setting      OCCellular network setting								
History Record								

2.On the [Number Settings] page, enter the mobile phone number used to receive the alarm, and then check the corresponding options. For example, if you want to receive text messages from the device startup, external power failure, and external power recovery, then check the startup, power failure, and Recover three incoming calls. Then click the [Write] button on the lower side. As shown below:

KING PIGEON							

ad Profile 🔺 Export Profile 📲 Del	ault Language Abou	t								
Basic Information	parameter settings	Cellular networ	k settings 🗴	Num	nber settir	ng 📉				
Parameter setting	Authorized User T	elephone Number Sett	ings							
Number setting		(Alarm No.)	Power On	Timer Report	Low Signal	Arm/Disar SMS	m Power Lost	Power Recovery	GPRS Failure	Relay Switch
Output Settings	User No.0	18665465454								
Relay setting	User No.1									
Incoming control	User No.2									
Access Control Settings	User No.3									
O Input Settings	User No.4									
DIN Trigger setting	User No.5									
DIN Alarm setting	User No.6									
AIN Trigger setting	User No.7									
AIN Alarm setting	User No.8									
Battery Trigger setting	User No.9									
Battery Alarm setting										
Timing Settings										
Hour Timer							R	ead		Save
Periodic Timer	Notice:									

3. Turn off, turn the work mode switch to "Run" side, that is, install the SIM card, then turn it on. After the SIM mobile phone card registered the network about 1-2 minutes later, the mobile phone number used to receive the alarm will be received sms:the device turn on . At the same time, unplug the external power supply of the device, and the mobile phone number will be able to receive SMS : the external power is failure. Then connect the external power supply to the device, the mobile phone number will be able to receive sms: the device's external power supply is recovery. So far, the device communication verification is completed.

4.Enter the configuration page of the device again.Click the [read] button on the set page to read out the parameters set previously, otherwise it will be covered by the new parameters.

### 7.2 Device connect analog transducer

If the oil level sensor to be connected to the analog input Al0 outputs a 4-20mA signal, the measuring range of the oil level is 10~90CM. When the measured oil level is lower than 30CM for more than 60 seconds, an alarm is required, then the setting steps as follows:

	AINO	AIN1
Û	V	V
Ŷ	mA	mA

A\_\_\_\_to the mA end, that is,

1. Turn off the device and turn theAIN0 input type selection switch  $\searrow$  the lower end.

2.Connect the oil level sensor to the port corresponding to Al0 through a wire. The following figure shows the wiring diagram:





3. Complete the basic setting according to 7.1.

4.Enter the [Al trigger setting] page, set the input type to [4~20mA], fill in the high alarm content, low alarm content, fill in the maximum range: 90, the minimum range: 10, threshold low value: 30, confirm time: 60. If you need to restore the alarm reminder, you need to tick the reset alarm and fill in the corresponding content in the restore content box, Click the [save] button . As shown below:

BMS110 Configurator V1.0											=	- 🗆	×
🖷 Load Profile 🛛 Export Profile 📲 Defa	ault Language Al	pout											
Basic Information	parameter settir	ngs 🖈 A	IN trigger setting	<u>*  </u>									
Parameter setting	Input Type	Channel Nam	e High Alarm SMS	Low Alarm SMS	Recovery SMS	Maximum	Minimum	Current Value	Threshold High	Threshold Low	Recovery Alarm	Alarm	Siren
Number setting	AIN0 4~2 ~	Oil level	Oil level Too I	Oil level Too I	Oil level resto	90	10	50	90	30		2	
Output Settings	AIN1 4~2 ~					0	0		0	0		2	
Relay setting	Temp. Enal ~					300	-50		0	0		0	
E-O Incoming control													
Access Control Settings	Notice:				Get	: Current	Read	Sav	'e				
Input Settings	<ol> <li>Maximun/Mini 0~100Mpa;</li> </ol>	mum: The meas	surement range of t	he transducers.e.g.									
DIN Trigger setting	2. Measurement 3. Alarm SMS For	Range: -9999.99 rmat: High/Low	9~9999.99, supports /Recovery Contect A	minus and decima	al. 3.								
DIN Alarm setting	4. Others are the	same as DIN.	,										
AIN Trigger setting													
AIN Alarm setting													
Battery Trigger setting													

5. In the [AIN Alarm setting] page, tick the corresponding alarm number (all are ticked by default).

6. Then restart the device. At this time, when the device is turned on, the external power supply is powered off, the external power supply resumes normal power supply, and the oil level is low, the device will alarm according to the configuration parameters, and notify the alarm receiver via SMS or phone. If the network communication function is set, It will also transmit data to a remote server or cloud via GPRS/3G/4G network.

### 7.3 Automatic control applications

Scenario: When monitoring the battery pack voltage is too low, control the inverter to stop working to prevent battery damage;

Need to use: total voltage low limit alarm and 1 relay output, assuming the relay DOUT0 is used.

The setting method is as follows:

1. In the off state, connect the inverter stop working interface to the relay port.

2. Complete the basic settings according to 7.1.

3. Set the first relay in the [Relay Settings] page, where the output type is selected as [Used as a switch], the channel name can be: control inverter, and the closing time is set to 0, which means it has been closed. Other options need not be set, click the [write] button at the bottom. As shown below:



Basic Information	parameter settings 🕺	Relay setting	<u>*</u>							
Parameter setting		Channel Name	Close Time (s)	Repeat Time	Interval Time(s)	ON/OFF SMS	Alarm Verify Time(s)	Open Description (MAX.30)	Close Descriptio (MAX.30)	n
Quitout Settings	Dout0 Switch on/off ~		0	0	0		2			
	Siren		0	0	0		2			
Relay setting										
Incoming control	1 If the Close Time setup a	s 0 this channel w	ill output NC t	ine and t	ha Interval	Time and	Repeat Times ca	n not be edited		
Access Control Settings	2. If the Close Time setup a	s not 0, this channel w	el will output l	VC type an	d the relay	will close	according to the	Close Time		
		action according	to the Repeat	Times after	er the Inter	val Time ti	meout.		Read	
2	then open, and repeat this	action according	to the hepede							
Input Settings	3. Only the first Channel (DO	D0) can be setup a	as Door Open	function, s	ee Access	Control pa	ge.			
Input Settings	then open, and repeat this 3. Only the first Channel (DO 4 If the Output Type setup 5. If the Output Type setup	00) can be setup a as Switch ON/OFF as Siren.then this	s Door Open , then this cha channel will be	function, s nnel will be used as s	ee Access e used as iren.and w	Control pa a switch. ill be activa	ge. ated according t	o the settings		
DIN Trigger setting	then open,and repeat thi 3. Only the first Channel (DC 4. If the Output Type setup 5. If the Output Type setup in AIN/DIN Alarm and Int	20) can be setup a as Switch ON/OFI as Siren,then this erlock page.	as Door Open 5, then this cha channel will be	function, s nnel will be used as s	ee Access e used as a iren,and w	Control pa a switch. ill be activa	ge. ated according t	o the settings		
Input Settings OIN Trigger setting OIN Alarm setting	<ul> <li>then open, and repeat this</li> <li>Only the first Channel (DO</li> <li>4 If the Output Type setup</li> <li>5. If the Output Type setup</li> <li>in AIN/DIN Alarm and Int</li> <li>6. Close time, Interval time,</li> </ul>	20) can be setup a as Switch ON/OFI as Siren,then this erlock page. Repeat Times and	as Door Open F, then this cha channel will be d Alarm Verify	function, s nnel will be used as s Time value	ee Access e used as a iren,and w es range fr	Control pa a switch. ill be activa om 0 to 99	ge. ated according to 99.	o the settings		
DIN Trigger setting DIN Trigger setting DIN Alarm setting AIN Trigger setting	then open, and repeat thin 3. Only the first Channel (DC 4 If the Output Type setup 5. If the Output Type setup in AIN/DIN Alarm and Int 6. Close time, Interval time, 7. Alarm Verify Time: If tick the PTL will set and SM	D0) can be setup a as Switch ON/OFF as Siren,then this erlock page. Repeat Times and the ON/OFF SMS 5 to alart the user	as Door Open 5, then this cha channel will be d Alarm Verify alert function,a	function, s nnel will be used as s Time value ind the rel	ee Access e used as a iren,and w es range fr ay closing	Control pa a switch. ill be activa om 0 to 99 or opening	ge. ated according t 99. g time less than t	o the settings the verify time,		
DINUT Settings DIN Trigger setting DIN Alarm setting AIN Trigger setting	then open, and repeat hith 3. Only the first Channel (DC 4 If the Output Type setup 5. If the Output Type setup in AIN/DIN Alarm and Int 6. Close time, Interval time, 7. Alarm Verify Time: If tick the RTU will not send SM	00) can be setup a as Switch ON/OFI as Siren,then this erlock page. Repeat Times and the ON/OFF SMS S to alert the user	as Door Open 5, then this cha channel will be d Alarm Verify alert function,a s.	function, s nnel will be used as s Time value nd the rel	ee Access e used as a iren,and w es range fr ay closing	Control pa a switch. ill be activa om 0 to 99 or opening	ge. ated according t 99. g time less than t	o the settings the verify time,		
DIN Trigger setting DIN Trigger setting DIN Alarm setting AIN Trigger setting AIN Alarm setting	then open, and repeat hith 3. Only the first Channel (DV 4. If the Output Type setup 5. If the Output Type setup in AIN/DIN Alarm and Int 6. Close time, Interval time, 7. Alarm Verify Time: If tick the RTU will not send SM	a dubn tecentry a as Switch ON/OFI as Siren, then this erlock page. Repeat Times and the ON/OFF SMS S to alert the user	s Door Open 5, then this cha channel will be d Alarm Verify alert function, s.	function, s nnel will be used as s Time value nd the rel	ee Access e used as a iren,and w es range fr ay closing	Control pa a switch. ill be activa om 0 to 99 or opening	ge. ated according t 99. g time less than t	o the settings he verify time,		
DINUT Settings DIN Trigger setting DIN Alarm setting AIN Trigger setting AIN Alarm setting AIN Alarm setting Battery Trigger setting	then open, and repeat thin 3. Only the first Channel (DV 4 If the Output Type setup 5. If the Output Type setup in AIN/DIN Alarm and Int 6. Close time, Interval time, 7. Alarm Verify Time: If tick the RTU will not send SM	00) can be setup a as Switch ON/OFI as Siren,then this erlock page. Repeat Times and the ON/OFF SMS S to alert the user	s Door Open , then this cha channel will be d Alarm Verify alert function,a s.	function, s nnel will be used as s Time value nd the rel	ee Access e used as a iren,and w es range fr ay closing	Control pa a switch. ill be activa om 0 to 99 or opening	ge. ated according t 99. 9 time less than t	o the settings he verify time,		
Input Settings DIN Trigger setting DIN Alarm setting AIN Trigger setting AIN Alarm setting Battery Trigger setting	then open, and repeat thin 3. Only the first Channel (DV 4. If the Output Type setup 5. If the Output Type setup in AIN/DIN Alarm and Int 6. Close time, Interval time, 7. Alarm Verify Time: If tick the RTU will not send SM	0) can be setup a as Switch ON/OFI as Siren,then this erlock page. Repeat Times and the ON/OFF SMS S to alert the user	s Door Open F, then this cha channel will be d Alarm Verify alert function, s.	function, s nnel will be used as s Time value nd the rel	ee Access e used as a iren,and w es range fr ay closing	Control pa a switch. ill be activa om 0 to 99 or opening	ge. ated according t 99. 9 time less than t	o the settings the verify time,		
<ul> <li>Input Settings</li> <li>DIN Trigger setting</li> <li>DIN Alarm setting</li> <li>AIN Trigger setting</li> <li>AIN Alarm setting</li> <li>Battery Trigger setting</li> <li>Battery Alarm setting</li> </ul>	then open, and repeat hith 3. Only the first Channel (DV 4 If the Output Type setup 5. If the Output Type setup in AIN/DIN Alarm and Int 6. Close time, Interval time, 7. Alarm Verify Time: If tick the RTU will not send SM	00) can be setup a as Switch ON/OFF as Siren,then this erlock page. Repeat Times and the ON/OFF SMS S to alert the user	as Door Open -, then this cha channel will be d Alarm Verify alert function, s.	function, s nnel will be used as s Time value ind the rel	ee Access e used as a iren,and w ⇔s range fr ay closing	Control pa a switch. ill be activa om 0 to 99 or opening	ge. ated according t 99. 9 time less than t	o the settings the verify time,		
<ul> <li>Input Settings</li> <li>DIN Trigger setting</li> <li>DIN Alarm setting</li> <li>AIN Trigger setting</li> <li>AIN Alarm setting</li> <li>Battery Trigger setting</li> <li>Battery Alarm setting</li> <li>Timing Settings</li> </ul>	then open, and repeat hith 3. Only the first Channel (DV 4 If the Output Type setup 5. If the Output Type setup in AIN/DIN Alarm and Int 6. Close time, Interval time, 7. Alarm Verify Time: If tick the RTU will not send SM	of can be setup i as Switch ON/OFI as Siren,then this erlock page. Repeat Times and the ON/OFF SMS S to alert the user	as Door Open -, then this cha channel will be d Alarm Verify alert function, s.	function, s nnel will b used as s lime value nd the rel	ee Access e used as a iren,and w rs range fr ay closing	Control pa a switch. ill be activa om 0 to 99 or opening	ge. ated according t 99. 9 time less than t	o the settings he verify time,		
<ul> <li>Input Settings</li> <li>DIN Trigger setting</li> <li>DIN Alarm setting</li> <li>AIN Trigger setting</li> <li>AIN Alarm setting</li> <li>Battery Trigger setting</li> <li>Battery Alarm setting</li> <li>Timing Settings</li> </ul>	then open, and repeat thin 3. Only the first Channel (DV 4 If the Output Type setup 5. If the Output Type setup in AIN/DIN Alarm and Int 6. Close time, Interval time, 7. Alarm Verify Time: If tick the RTU will not send SM	20) can be setup i as Switch ON/OFI as Siren,then this erlock page. Repeat Times and the ON/OFE sand S to alert the user	as Door Open , then this cha channel will be I Alarm Verify alert function,a s.	function, s nnel will br used as s Time value Ind the rel	ee Access e used as a iren,and w ts range fr ay closing	Control pa a switch. ill be activa om 0 to 99 or opening	ge. ated according to 99. 9 time less than t	o the settings the verify time,		
<ul> <li>Input Settings</li> <li>DIN Trigger setting</li> <li>DIN Alarm setting</li> <li>AIN Trigger setting</li> <li>AIN Alarm setting</li> <li>Battery Trigger setting</li> <li>Battery Alarm setting</li> <li>Timing Settings</li> <li>Hour Timer</li> </ul>	then open, and repeat thin 3. Only the first Channel (DV 4 If the Output Type setup 5. If the Output Type setup in AIN/DIN Alarm and Int 6. Close time, Interval time, 7. Alarm Verify Time: If tick the RTU will not send SM	20) can be setup i as Switch ON/OFI as Siren, then this erlock page. Repeat Times and the ON/OFF Sire Sire S to alert the user	as Door Open , then this cha channel will be d Alarm Verify alert function,a s.	function, s nnel will br used as s Time value nd the rel	ee Access e used as a iren,and w ts range fr ay closing	Control pa a switch. ill be activa om 0 to 99 or opening	ge. ated according t 99. 9 time less than t	o the settings the verify time,		

4. In the [Battery Trigger Settings] page, set the number of [Battery quantity], At the same time, set the corresponding SMS alarm content, set to 45 in the [Threshold high] and 20 in the [Threshold low ]. The recovery alarm and confirmation time can be filled in as needed, and then click the [save] button. As shown below:

5. In the [Interlock Settings] page, select [Total Voltage Low Limit Alarm] for the event, select [Relay 0 Closed] for the action, and click the [Add] button to add this associated event to the device, which means When the total battery voltage is lower than 20V, the device will automatically close relay DOUT0, that is, stop the inverter; select [total voltage recovery] for the event, select [relay 0 off] for the action, and click the [Add] button to This associated event is added to the device, which means that when the total voltage returns to more than 20V, the device will automatically disconnect relay DOUT0, that is, the inverter is in a working mask. Click the [save] button on the lower side, as shown in the figure below:

ENISTIC Configurator VI.0     Export Profile Profile Default	Language About						U	^
Basic Information	AIN alarm setting	Battery Trigger Settin	gs 🖄 📕 Battery Alarm Settings 📩	Clock timer 🖍	Second time	Association settings 🖄		•
Parameter setting	Event:	total voltage recovery	~					
Number setting	Action:	Relay o open	~	Add	Delete			
Relay setting								
Incoming control	Event		Action					
Access Control Settings	Total Voltage Lo	w Limit Alarm	Relay 0 close Relay 0 open					
	. star totago to	,	county a set and					
DIN Trigger setting								
AIN Trigger setting								
AIN Alarm setting								
Battery Trigger setting								
Battery Alarm setting								
Hour Timer								
Periodic Timer								
Interlock Settings								
Interlock Setting		1						
Cellular network setting	Clear		Custom interlock settings,Max.40					
History Record								
History Record				Read	Sa	ive		

6. Then restart the device. At this time, when the device is turned on, the external power supply is powered off, the external power supply resumes normal power supply, and the temperature is over high or low, the



device will alarm according to the configuration parameters, and notify the alarm receiver via SMS or phone. If the network communication function is set, It will also transmit data to a remote server or cloud via GPRS/3G/4G network. At the same time, the inverter will be turned on or off automatically according to the high and low limits of the total battery voltage.

### 7.4 Connect to cloud platform configuration, WeChat push applications

### 7.4.1 Device connection cloud platform configuration

This device supports access to cloud platform or SCADA system through GPRS/3G/4G network. Users can choose private cloud platform and KingPigeon 3.0 cloud platform. This section introduces an example of accessing the cloud platform KPIIOT V3.0 as an example.

KPIIOT V3.0 cloud platform supports Modbus protocol, has configuration function, supports WeChat alarm function, powerful editable function is very popular with users. For more information about WeChat push and cloud platform configuration instructions, please refer to the KPIIOT V3.0 cloud platform configuration materials.

1) In the [Basic Parameter Setting] page, set the ID number of this device. In the Modbus RTU protocol, the range is 1~247, as shown in the figure below:

sic Information	parameter settings	<u>*</u>						
Parameter setting	Modify password Old pa	ssword:	Synchro Tin	nous machine time	0:00			
Number setting	New pa	ssword:	Time zo	Time zone: (UTC+08:00)				
tput Settings	0 Confirm	password:	Read t	the Write the	Read the computer			
Relay setting		Modify	KIO U	ine Kto une				
oming control	Basic information	(1~247) Model N	BMS110	Version 2E	410			
Access Control Settings	Device Description		(60 Char	acters) IMEI 86	914104752902			
ut Settings	Add timestamp to	alarm SMS						
DIN Trigger setting								
DIN Alarm setting	Add the following	Content Settings additional information in the	report SMS	Set All				
AIN Trigger setting	AIN0	GSM/3G Signal	DINO	D00	Battery			
	AIN1	External Power	DIN1	DO1				
AIN Alarm setting	Temperature	Device						
To.	Carbon Carbon	Device						

2) In the [Network Settings] page, set the network parameters as follows:

Click King Pigeon Cloud 3.0 platform, the software will automatically fill in the parameters that need to be set, just contact the sales customer service to provide the login message, and enter the location as shown below. And 3.0 cloud platform account and password.



BMS110 Configurator V1.0	сь 1 — 41 - 1								- 0	×
<ul> <li>Load Profile  <ul> <li>Export Profile</li> <li>Description</li> </ul> </li> <li>Basic Information <ul> <li>Parameter setting</li> <li>Number setting</li> </ul> </li> <li>Output Settings</li> </ul>	fault Language About parameter settings  King Pigeon cloud 3.0 Cellular Network Settings Communication Protocol	King Piged	ork set on clou us RTU	tings <u>M</u> Id 2.0 Connec	t other IOT server	r Server 1 IP/DNS	modbu	srtu.kprtu.com	5	(Ma
Relay setting     Incoming control     Access Control Settings     Input Settings     DIN Trigger setting	Protocol Access Point Name APN User Name APN Password	TCP		~	(Max60) (Max60) (Max60)	Server Listen Port Server 2 IP/DNS Server Listen Port Heatbeat Interval No Response Resend Times	4000 60 3	(0- (0- (1-9) (1-9)	-65535) -65535) 9999S)	(Ma
AIN Alarm setting	Message Settings Login Message	ASCII	~			(Max60)				
Battery Trigger setting Battery Alarm setting Timing Settings	Heartbeat Message	ASCII ASCII	~	req		(Max60) (Max60)				
Periodic Timer Periodic Timer Interlock Settings	Login Message Strategy Pls fill in the login mess	0.Send O	nce Wi 遑示	hen Login Servery	~		×			
Interlock Setting      Network settings      Cellular network setting				Click this button package, please o Contact + 86 755 Fill in the registra	to fill in the registra ontact Golden Pige 29451836 for a regis tion package and c	tion package.For the registration son Sales Representative. stration package; lick Write to restart the device		Read	Si	ive
History Record						确定				

3)Click the [save] button , and turn off the device.

4) Turn on, push the power switch to the ON side, and the device will enter the working mode. At this time, the device can realize the functions of network acquisition and control of the local I/O, configuration, and WeChat push alarm information.

5) Enter modbusrtu.kpiiot.com in the computer browser and log in with the cloud platform account and password registered by the sales customer service. As shown below:

w modbusrtu.kpiiot.com/login      ★     +	- 🗆 X
← → C ▲ 不安全   modbusrtu.kpiiot.com/login	⊠ ☆ 😬 :
金譜物联网云V3.0平台	Language 🔻
	٦0
金鸽物联云平台 V3	Login By Password
	A User Name
	A Password
	Keep Me Signed In
■ <b>下在于外线</b> 微姐目标关注 手机度课设备	Login By Wechat Qr Code

Click [Device Management]-[New Device]-respectively enter the device ID (login message), device name,Overtime Time (default is 300 seconds) of the device, select the device address on the map, and



then click OK.

Liser Center

King Pigeon	运 KPIIOT V3.0	C Help Language V
n Home	A Home × ③ New Device ×	
Device Management	* Device Id: Device Id	
③ New Device	Product Name:	Protocol:
G Device Management		
小 Device Group Management	* Device Name: Device Name	
Task Management	Icon: +	
User Center ~	Modify	
🗹 Data Analysis 🛛 🗸 🗸		
	Overtime Time: Offline If Idle Time Reached (5)	Seconds Overtime Time Must Exceed The Collection Time, Otherwise Device Will Offline Frequently.
	* Device Address:	
	Hidden Many	
	Hidden Map:	
	Gaode Map Google Map	
		Access Requires A Vpn
	Add Batch Add	

The cloud platform recognizes all data points of BMS110 by default. Then return to [Monitoring Center]-[Device List] to monitor the current value of each data point of BMS110 in real time.

#### 7.4.2 WeChat push settings

1.Please follow the "King Pigeon lot" WeChat official account, log in your account and password on the web page, and click on the "user center" in the user name, as shown below:

* User Name :	kptest
* Name :	Koolboks
E-Mail:	xiexiaojiang@iot-solution.com
* Phone No.:	+234(Nigeria) V 7036469096
* Time Zone :	(UTC+01:00) Central Africa west $\lor$
* Default Language :	English
Balance :	¥0
Binded Wechat:	Nico Unbind
Wechat Official Account Qr Code:	Please Follow The Public Accounts Otherwise You May Miss Important Wechat Push Information.

Cancel Ok

Scan"Wechat Official Account Qr Code".

2.After the follow-up is successful, open WeChat again and scan the QR code bound to WeChat, as



shown in the following figure:

* Name :	Koolboks	
E-Mail:	xiexiaojiang@iot-solution.com	1
* Phone No.:	+234(Nigeria) 🗸 🗸	7036469096
* Time Zone :	(UTC+01:00) Central Africa we	st
* Default Language :	English	
Balance : Binding Wechat:	¥0	Scan Qr Code Binding
Wechat Official Account Qr Code :		Please Follow The Public Accounts Otherwise You May Miss Important Wech

3. Fill in your own cloud platform account and password in the page on the left as shown below, and click "bind"; the right image below is the interface after successful binding;





4.Log in on the web page, click on the user center, you can see the successfully bound WeChat, as shown below:

🐨 King Pigeon	≡ KPIIOT V	3.0					$\square$	C	Help La	anguage
🏦 Home	A Home ×	⊕ New Device × ▲     ▲	User Management X							
Device Management ^	User Name	Dept. Name	Role Name	Search	Reset					
New Device						*				
G Device Management		User Name	Dept.	Name	Wechat Name	Wechat Profile Photo	Balance		Create	e Time
小 Device Group Management		kptest		Koolboks	Koolboks		¥0		2019-03-	12 11:01
🖽 Task Management 🛛 🗸 🗸										
User Center									1	lotal 1 R
🍐 User Management										
Transaction Log										
🗹 Data Analysis 🗸 🗸										

5.Click "Task Management"-"Trigger Management"-"New Trigger" on the web page, as shown in the page below, select "WeChat" in the alert mode, and select the account that has just been successfully bound to WeChat in the alert contact Contact, click submit

		<b>Battery Man</b>	agement	Alarm System BMS100
King Pigeon	画 KPIIOT V3.0			
希 Home	A Home X ⊕ New De	evice × 🔒 User Management ×	谊 Trigger Management X	
	Enable/Disable:			
Device Management				
New Device	* Device :	Device	~	
G Device Management	Select Data Point:	Data Point	V	
♦ Device Group Management	* Trigger Condition:	Trigger Condition	V	
Task Management ^				
🖄 Alarm Contacts	Wechat Contact:	Wechat Contact		Billing Rules: ¥ 0/Wechat
🕀 New Trigger	Sms Contact:	kptest koolboks		Billing Rules: ¥0.1/Text Message
🚊 Trigger Management	Email Contact:	koolbok Email Contact		Billing Rules: ¥0/Email
🖶 New Timer				
© Timer Task	Voice Contact:	Voice Contact		Billing Rules: ¥ 0.2/ Voice
User Center ^	App Contact:	kptest $\times$		
🛔 User Management	Re-Notify Interval:	0		Seconds ②
Transaction Log	* Forward Or Not	No Yes		

6.When the created trigger reaches the alarm condition, an alarm will be triggered. WeChat will receive an alarm push, and the PC will also have an alarm display, as shown in the figure below (When the first alarm push is not confirmed, WeChat will Push again according to the re-alarm interval set when the trigger is created).

7. The WeChat terminal also supports online viewing of devices. Click "King Pigeon IOT" --- "Monitor", enter the account and password, and click login, you can see all the devices under the account, and you can operate the devices online and monitor data in real time

### 7.5 Modbus slave application

#### 7.5.1 Read the device DO status

The DO register address of the relay provided by the machine belongs to the holding coil, address 0-1, see details "Appendix B local registers".

Send content	Bytes	Data (H:HEX)	Description
Device address	1	01H	01H device ID, range: 1-247, subject to the
			address set
Function code	1	01H	Read the holding coil with function code 01
Do register	2	00 00H	Range: 0000H-0001H
start address			
Number of read	2	00 02H	Range: 0001H-0002H
do registers			
16 CRC check	2	BD CBH	CRC0 CRC1 low byte first, high byte behind

#### Master Send Data Format:

🗹 Data Analysis





#### **Receiver Return Data Format:**

send content	Bytes	Data (H:HEX)	Description
Device address	1	01H	01H device ID, consistent with the data issued
Function code	1	01H	Read holding coil
Return byte length	1	01H	Return data length
Return data	1	02H	Data returned
16 CRC check	2	90 48H	CRC0 CRC1 low byte first, high byte behind

Example: read two DO states with device address 1.

Sent by server: 01 01 00 00 02 BD CB

Among them:

01: device address

01: read relay DO function code

00 00: DO register start address

00 02: read 2 DO data continuously

BD CB: CRC verification

Decvice return: 01 01 01 01 90 48

Among them:

01: device address

01: read relay function code

01: return data length

02: The returned data, converted into binary: 0000 0010, the upper 6 bits 000000 are useless, and the lower 2 bits 01 correspond to Siren, DOUT0, 0 stands for open,1 stands for close. The values are as follows:

siren	DOUT0 ( relay
	output)
0	1
no output	close

#### 90 48: CRC verification

If you want to read a certain DO status or certain DO statuses, you only need to modify the "DO Register Start Address" and "Read Register Number", and then recalculate the CRC. The returned data is analyzed as described above.

#### 7.5.2 Control device DO status

#### Control device single Digital output:

Master Send Data Format:

Content	Bytes	Data (H:HEX)	Description
Device address	1	01H	01H device ID, Range: 1-247, according to setting address
Function code	1	05H	Write single holding coil with function code 05
DO register	2	00 00H	Range: 0000h-0003H





address			
Active	2	FF 00H	This value: FF 00H or 00 00H, FF 00H=
			Close relay, 00 00H= Open relay
16 CRC Verify	2	8C 3AH	CRC0 CRC1 low byte first, high byte behind

#### Receiver Return Data Format:

Content	Bytes	Data (H:HEX)	Description
Device address	1	01H	01H device ID, according to the data Master send
Function code	1	05H	Write single holding coil type, function code 05
Do register address	2	00 00H	Range: 0000h-0003H
Action performed	2	FF 00H	This value: FF 00H or 00 00H, FF 00H= Already actived close relay, 00 00H= Already actived open relay
16 CRC Verify	2	8C 3AH	CRC0 CRC1 low byte first, high byte behind

Example: Control relay DO0 close, then:

Server send: 01 05 00 00 FF 00 8C 3A

01H= Device address; 05H= Control single relay command; 00 00 H DO0= Address; FF 00H= DO0 close; 8C 3A H16 byte CRC verify.

Device answer: 01 05 00 00 FF 00 8C 3A

01H= Device address; 05H= Control single relay command; 00 00 H DO0= Address; FF 00H= ActiveDO0 close; 8C 3AH 16 byte CRC verify.

If single control other relay outputs, only need to change "DO Register Address" and "Active", calculate CRC verify again.

#### 7.5.3 Read device DIN status:

#### Data Description Content **Bytes** (H:HEX) **Device address** 1 01H 01H device ID, range: 1-247, according to setting address 02H Read input coil with function code 02 Function code 1 00 00H DI register start 2 Range: 0000h-0001h, corresponding toDI0-DI1 address 2 00 02H Range: 0001h-0002h, read the number of DI Read DIN Register Qty 16 CRC verify 2 F9 CBH CRC0 CRC1 low byte first, high byte behind

#### Master Send Data Format:

#### **Receiver Return Data Format:**

Content	Bytes	Data (H:HEX)	Description
Device address	1	01H	01H device ID, according to setting address
Function code	1	02H	Read input coil





Return Bytes	1	01H	Return data length
Qty			
Return data	1	00H	Return DI data
16 CRC verify	2	A1 88H	CRC0 CRC1 low byte first, high byte behind

Example: query 2 local DI data at the same time, then:

Sent by server: 01 02 00 00 02 F9 CB

Among them:

01: device address

02: Inquiry DIN status

00 00: DI starting address

00 02: read 2 DIN States continuously

F9 CB: CRC verify

Device return: 01 02 01 00 A1 88

Among them:

01: equipment address

02: Inquiry DIN status

01: return data bytes

00: DI state, each bit represents a DI state, 00h is converted into binary: 0000 0000. From high position to low position, it corresponds to DI 1-DI0 state in turn, 0 means open, 1 means close.

DI1	DI0
0	0
OPEN	OPEN

A1 88: 16 bit CRC verify

If you want to query some di status, you only need to change "DI start address" and "read DI register number", and recalculate CRC verify.

#### 7.5.4 Read AI, temperature, DI count value, battery and external power value

Content	Bytes	Data (H:HEX)	Description	
Device address	1	01H	01H deviceID, range: 1-247, according to	
			setting address	
Function code	1	04H	Read input register with function code 04	
Register start	2	00 00H	Register start address	
address				
Read Register Qty	2	00 1EH	Read 30 16 bit register addresses in total	
16 CRC verify	2	70 02H	CRC0 CRC1 low byte first, high byte behind	

#### **Master Send Data Format:**

#### **Receiver Return Data Format:**

Content	Bytes	Data (H:HEX)	Description				
Device address	1	01H	01H	device	ID,	according	to
			setting address				





Function code	1	04H	Read input register
Returned bytes qty	1	3CH	Return data length
		00 00 09 6E 00 00 14	
		89 04 C2 04 C2 04 C2	
		04 B9 12 FF 00 00 00	
Return data	38	00 00 00 00 00 00 00	
		04 96 01 96 00 00 00	Data values returned
		00 00 00 00 00 00 00	
		00 00 00 00 00 00 08	
		C6 00 00 00 00 00 70	
		00 00 00 08H	
16 CBC vorify	2		CRC0 CRC1 low byte first, high
IO CRC Verily	2		byte behind

Example: Inquiry device AIN, DINO count value, temperature, battery voltage, external power voltage at the same time, then:

#### Server send: 01 04 00 00 00 1E 70 02

01= Device address; 04= Read input register value; 00 00: Starting address; 00 1E= Serial reading 28 input register value; 70 02 CRC verify.

Device answer: 01 04 3C 00 00 09 6E 00 00 14 89 04 C2 04 C2 04 C2 04 B9 12 FF 00 00 00 00 00 00 00 00 08 0A 5D

01= Device address; 04= Read input register value; 3C:return bytes data 00 00 09 6E 00 00 14 89 04 C2 00 00 00 00 00 08 C6 00 00 00 00 00 70 00 00 00 08: returned data, the details are as follows:

Item	AI0	Al1	Bat1	Bat2	Bat3	Bat4	Bat
Data receive	00 00 09 6E	00 00 14 89	04 C2	04 C2	04 C2	04 B9	12 FF
Decimal value	2414	5257	1218	1218	1218	1209	4863
Real value	24.14	52.57	12.18V	12.18V	12.18V	12.09V	48.63V

ltem	Reserved address	External power supply voltage	Internal battery voltage	Reserved address	Temperature value	Reserved address	DI0 count value	DI1 count value
Data receive		04 96	01 96		08 C6		00 00 00 70	00 00 00 08
Decimal value		1174	406		2246		112	8
Real value		11.74V	4.06V		<b>22.46</b> ℃		112	8

0A 5D: CRC verify



### 8. Update Firmware

This device adopts modular structure design. When the operator's network is upgraded, the whole hardware does not need to be replaced. If the communication module inside the equipment is replaced directly, the equipment can be easily and quickly upgraded from GSM network to 3G network or from 3G network to 4G network.

This device supports direct firmware upgrade via USB port. If you need to upgrade firmware for any new requirements, please contact us.

### 9. Warranty

1) This equipment from the date of purchase, for a period of one year, there are any material or quality problems, free maintenance.

2) This one-year warranty does not include any product failure caused by human damage, improper operation, etc.

### 10. Technical support

Shenzhen King Pigeon Technology Co., Ltd Tel: 0755-29451836 website:<u>http://www.iot-solution.com</u>

### 11. Appendix A SMS Command List

#### 1)Modify Password

Operation	Command	Return
Set up	Old password + P + new password	This is the new password. Please keep it in mind.

① Note: the default password is 1234, and the new password requires 4 digits.

#### 2)Arm/Disarm

-,		
Operation	Command	Return
Arm	password+AA	Armed
Disarm	password+BB	Disarmed
B)Setting RTU time		
Operation	Command	Return
Set up	Password + Dxxxx-xx-xxTxx:xxWxx	xxxx(Y)XX(M)XX(D)xx(H)X(



Example:	M)xx(W)
1234D2015-05-22T15:20:30W01,	
W01 for Monday, W07 for Sunday	

#### 4)Inquiry device status

Operation	Command	Return		
		Armed/Dis	armed	
		Model:		
	Password + EE	Version:		
inquiry		IMEI:		
		GSM Sign	al Valu	ie:
		External	DC	Power
		Goes OFF	/ON	

#### 5)Set user number

Operation	Command	Return
	password+A+series number+T+tel	
set up	number.	Telx:
	Serial number: 0-9	
Inquiry	Password + A	Return all numbers
Delete	Decoword I A Loorial number	Return serial numbers 0
Delete	Password + A + senai number	~ 4 and 5 ~ 9

#### 6)Authority User Number to access control:

authorized number can dial to disarm and open the door

After setting, the user number will open the door within the authorized time

Operation	Command	Return
set up	Specified access control time: password+B+series number+S+start time+E+endtime Always can access control: password+B+series number+P Notice: Time format is 201505231230, stands for year, month, date, hour, minute	Tel1: Tel2: Tel3: 13570810254 Tel4: Tel5:
inquiry	Password + B	Return all authorization numbers
delete	Password + B + serial number	Return all authorization numbers

#### 7)Set daily report time

Operation	Command	Return
	password+DR+series number+T+time	Daily SMS Report
Setup	Notice: at: xx:xx	
	Series number =0~9, e.g.:	
	1234DR1T12:30	
Inquiry	password+DR	
Delete	password+DRDEL	

#### 8)Digital input





Operation	Command	Return
Inquiry Status	password+DINE	DIN1:Open/Close
		DIN2: Open/Close

### 9)Analog input

Operation		Command	Return	
	setun	password+AINR+channel	AINx: Low:xxx,High:xxx.	
Set	Secup	number+Lxxx+Hxxx		
Throshold	inquin	password+AINP+ Sorial number	AINx: Low:xxx, High:xxx.	
velue	inquiry		AINy: Low:xxx, High:xxx.	
value	delete	Password + AINR + serial number +		
	delete	DEL		
			AIX: minimum XXX, maximum	
		password+AINM+ channel	XXX.	
	secup	number+Lxxx+Hxxx	AIY: minimum XXX, maximum	
			XXX.	
Sensor			AIX: minimum XXX, maximum	
range	inquiry	password+AINM+ Serial number	XXX.	
			AIY: minimum XXX, maximum	
			XXX.	
	delete	Password + AINM + Serial number +		
		DEL		
Inquiry			AINx: xxxx ,	
current		password+AINE+Serial number	【Normal/Higher/Lower】	
value				
Inquiry			AIN1: xxxx ,	
			【Normal/Higher/Lower】	
Current		Password + AINE	AIN2: xxxx ,	
Value			[Normal/Higher/Lower]	
value				

#### 10) Control relay

	SMS Command	Return SMS Content	
Set DO Name	password+DO+channel number+T	DOx:xxxx	
Inquiry DO Name	password+DO+ channel		
	number <nnnn></nnnn>		
Delete DO Name	password+DO+ channel		
	number+DEL		
Switch ON(Close)	password+DOC+ channel	DOx: ON	
	number <nnnn></nnnn>	DOy:ON	
Switch OFF(Open)	password+DOO+ channel	DOx: OFF	
	number <nnnn></nnnn>	DOy:OFF	
Inquiry DO Current	password+DOE+ channel	DOx: ON/OFF	
Status	number <nnnn></nnnn>	DOy:ON/OFF	





Inquiry all DO Current	password+DOE DO1: ON/OFF	
Status		DO2:ON/OFF
Time Switch ON (Close)	password+DOLC+ channel	
	number <nnnn></nnnn>	
Set Pulse Output time	password+DOT+xxx	Pulse Output Time:xxxS
Inquiry pulse output time	password+DOT	Pulse Output Time:xxxS
Pulse Ouput	password+DOP+channel	No SMS Return
	number <nnnn></nnnn>	

#### 11)Set up server (cellular network)

Operation	Command	Return
cotup	Password + IP + IP address + P + port	
set up	number	The server:
inquiry	Password + IP	Port:
delete	Password + IPDEL	

#### 12)Setting cellular network parameters

Operation	Command	Return
sotup	Password + AP +APN+# + user name	APN:
Set up	+# + user password	user name:
inquiry	Password + AP	password:
delete	Password + APDEL	

#### 13) GPRS Online

Operation	Command	Return	
Control online	Password + GPRSonline	GPRS always on	

#### 14)Historical records

Operation	Command	Return	
delete	Password + HISDEL	Delete all history	

#### 15)Set pulse counter

Operation	Command	Return	
Clearing	Password + DIN + serial number + CLR	Clear successfully	
query	Password + PR	Current counter value:	
		XXX	

Note: "serial number" is  $0 \sim$ , corresponding to DI0 ~ 1 pulse counter

#### Appendix B Modbus Register Address 12.

#### 1) Holding coil type, readable and writable, function code 01/05/15.

Register address			Data	
Modbus	PLC or	Data name	Dala	Description
Register	configuratio		type	





Address(Decima	n address			
I)	(Decimal)			
0	0001	RTU relay	Bool	1:close
1	0002	Siren	Bool	0:open

#### 2) Input coil type, read-only, function code 02.

Register address				Description	
Modbus Register Address(Decimal )	PLC or configuratio n address (Decimal)	Data name	Data type		
0	10001	RTU DI0	Bool	Dry contact Short circuit: logic 1	
1	10002	RTU DI I	Bool	Open circuit: logic 0 Wet contact 0-0.5v: logic 1 3-30V: logic 0	

3) Input register type, read-only, function code 04.

Register address						
Modbus Register Address(Decimal )	PLC or configurati on address (Decimal)	Data name	Data type	<sup>®</sup> Description		
0~1	30001~3000 2	RTU AIN 0	32bit int	Y=X/100		
2~3	30003~3000 4	RTU AIN 1	32bit int	Y=X/100		
4	30005	Battery 1	16bit unint	Y=X/100		
5	30006	Battery 2	16bit unint	Y=X/100		
6	30007	Battery 3	16bit unint	Y=X/100		
7	30008	Battery 4	16bit unint	Y=X/100		
8	30009	Total battery voltage	16bit unint	Y=X/100		
9-13	30010~3001 4	Reserved, not available				
14	30015	Power voltage	16bit unint	Y=X/100		
15	30016	Internal battery voltage	16bit int	Y=X/100		
16-23	30017~3002 4	Reserved, not available				
24	30025	Temperature	16bit unint	Y=X/100		
25	30026	Reserved, not available				
26~27	30027~3002 8	DIN0 Count Value	32bit unint	Enable when as counter mode		
28~29	30029~3003 0	DIN1 Count Value	32bit unint	Enable when as counter mode		

#### Note 1

In the description, the variables are defined as follows:

Y: True value



X: The register in which the value is stored

"Y = X/100" stands for "Real value = value stored in current register/100"

Read and write holding Coil. function code 03/06/16. 4)

Register address						
Modbus	PLC or		ta name Data	Description		
Register	configuration	Data name				
Address	address		type			
(Decimal)	(Decimal)					
253 (bit0)	40254 (bit0)	DI0 clear	Pool	Write 1 to clear the DI0		
			DUUI	count		
253 (bit1)	40254 (bit1)	DI1 clear	Bool	Write 1 to clear the di1		
				count		
12 (bit0)	40013 (bit0)	Arm/disarm status	Bool	0 is disarm,1 is arm		

#### 13. Appendix D MQTT Application

MQTT is a client-server based message publish/subscribe transport protocol. The MQTT protocol is lightweight, simple, open, and easy to implement, and these features make it very versatile. In many cases, including restricted environments such as machine to machine (M2M) communication and the Internet of Things (IoT). It is widely used in satellite link communication sensors, occasionally dialed medical devices, smart homes, and some miniaturized devices. The MQTT protocol runs on TCP/IP or other network protocols, providing ordered, lossless, two-way connectivity.

The following example uses access to King Pigeon cloud 2.0 platform www.my-m2m as an example.

### MQTT Principle

There are three identities in the MQTT protocol: Publisher (Publish), Broker (Server), Subscriber (Subscribe). Among them, the publisher and subscriber of the message are both clients, the message broker is the server, and the message publisher can be the subscriber at the same time.

Devices use MQTT communication through only two steps.

1. Devices publish the Topic through broker;

2. Users can create a account on broker to subscribe to the device to achieve monitoring



(uploads data to Broker)



Publisher (User account)	Broker (King Pigeon cloud2.0)	Publish message Subscribe message	Subscriber (BMS11)
-----------------------------	-------------------------------------	--------------------------------------	-----------------------

#### **Client configuration:**

BMS110 Configurator V1.0								17 <u>-</u> 3		×
🐔 Load Profile 🛛 Export Profile 📲	Default Language About									
Basic Information	AIN trigger setting 🖄 Relay s	setting 🖄 Associatio	on settings 🖄 🛛 DIN t	rigger setting 🖍	Access Cont	rol Setting 🖄	Number setting	Cellular network s	ettings 🛃	ו•
Parameter setting	King Pigeon cloud 3.0 K	King Pigeon cloud 2.0	Connect other IOT serv	er						
Output Settings	Cellular Network Settings	11. 12								
Relay setting	Communication Protocol	MQTT	~	Serve	er 1 IP/DNS	modbus.dtu	ip.com	(Max60)		
	Protocol	TCP	~	Server Li	isten Port	6651	(0-65535)			
Access Control Settin	Access Point Name		(Max60)	Serve	er 2 IP/DNS			(Max60)		
Access control securi	APN User Name		(Max60)	Server Li	isten Port		(0-65535)			
DIN Triana antia	APN Password		(Max60)	Heatbe	eat Interval	60	(1-9999S)			
				No Response Reser	nd Times	3	✓ (1-9)			
DIN Alarm setting					MQTT Settin	igs				
AIN Trigger setting					Subscri	be Topic	8691410475306640/+			
AIN Alarm setting					Publ	ish Topic	8691410475306640			
Battery Trigger settir					MOT	T Client ID	8691410475306640		-	
Battery Alarm setting					mqr	, cherre to			-	
Timing Settings					MQTLU	ser Name	MQII			
Hour Timer					MQTT	Password	MQTTPW			
Periodic Timer					Automati	c data upload c	cycle 60	Sec		
Interlock Settings					MQTT	Data retransmi	ssion 🗹 EN/	ABLE/DISABLE		
Interlock Setting					Tips	s: Only use MQ1	IT Protocol require to s	etup.		
Network settings						7				
Cellular network sett						Read	Save	•		
History Record										
History Record										
COM1		Equipment model:								
										19:09

1) Communication protocol: MQTT protocol

2)Server IP domain name: King Pigeon Cloud 2.0 default:mqtt.dtuip.com

3)Port: Broker Server Port number (King Pigeon Cloud 2.0 default:1883).

4)Subscription topic: Client subscribe topic (King Pigeon cloud 2.0 default: serial number/ +)

5)Publish topic: Device publish data topic (King Pigeon cloud 2.0 default: serial number/+).

6)Mqtt client ID: the unique identification, which can be serial number, device ID, or IMEI code (KingPigeon Cloud 2.0 default is serial number)

7)Mqtt user name: Device's account on the broker server (King Pigeon Cloud 2.0 default is MQTT)

8)Mqtt password:Password of device's account on the broker server(King Pigeon Cloud 2.0 default is MQTTPW)

After the configuration is completed, the client will initiate a connection to the server:

Connect: the client sends a connect message request to the server;

Connack: the server responds to a connack confirmation message, indicating that the connection is successful;

After the client establishes a connection, it is a long connection, and the client can publish or subscribe messages on the server;

Take devices and customers' mobile phones as clients

After the device publishes the topic on the proxy server, customers can view the data through subscription. That is, the device is the publisher, and the customer's mobile phone is the subscriber.

Similarly, users can control the device by publishing topics through the mqtt server. That is, the



user is the publisher and the device is the subscriber.

#### Payload data format in equipment release message

```
Publish Topic: MQTT client ID (filled in configuration software)
{
         "sensorDatas":
        ſ
            {
                                      //Read write identification
                 "flag":"DI1",
                 "switcher":1
                                       //Data type and value
            },
             {
                 "flag":"AI1",
                 "value":10.00
             }
        ],
        "time":"1591841863",
        //Time stamp (When power on, first time connection no time stamp, later
    connectionshave time stamp)
        "state":"alarm",
       //Alarm and recovery identification (only for alarm or recovery data, but
nottimly report)
        "retransmit":"enable"
       //Historical data identification (only for re-transmission of historical data, but
not for real-time data)
     }
```

#### Note:

Read / write identifier: the character is "flag", followed by "read / write ID representing IO data point" Data type and value: it can be divided into:

- 1. Switch data: the character is "switcher", followed by "0" or "1" (0 for open, 1 for closed)
- 2. Numerical data: the character is "value", followed by "specific value"

Time identification: the character is "time", followed by "specific reporting time stamp" Alarm and recovery identification: the character is "state", followed by "alarm" or "recovery" (alarm represents alarm data and recovery represents recovery data)

Historical data identifier: character "retransmit", followed by "enable"

The data collected during the network disconnection will be temporarily stored in the device, and will be redistributed when the network is restored. The "retransmit" field is used to identify the historical data.(it is necessary to check enable mqtt data supplementary transmission function in the configuration software).

#### Payload data format in device subscription message

(The topic of the King Pigeon 2.0 platform downstream publish message is called "device serial number/sensor ID", so the device subscribe topic needs to add the wildcard "/+" in order toreceive the data sent by the platform to achieve control)Subscribe topic: device



serial number /+(corresponding to the data filled in the subscribe topic item on the configuration software)

{			
	"senso	rDatas":	
	[		
	{		
		"sensorsId": 211	267, //Platform sensor ID
		"switcher":1,	//Data type and value
		"flag":"DO1"	//Read write identification
	}		
	],		
	"down"	:"down"	Platform downlink message identification
}			

Note:

Platform sensor ID: character is "sensorsID", followed by ID number (ID is automatically generated by platform)

Data type and value: it can be divided into:

- 1. Switch data: the character is "switcher", followed by "0" or "1" (0 for open, 1 for closed)
- 2. Numerical data: the character is "value", followed by "specific value"

Read / write identifier: the character is "flag", followed by "read / write ID representing IO data point" Platform downlink message identification: the character is "down", followed by "down", which means that this is the platform downlink data.

Device	1/0	data	noint	read	and	write fl	ad
Device	<b>"</b>	uata	point	reau	anu	WING II	ay

Data name	Read write flag	Data type	Description
Relay output	DO0	Switcher	0 is open, 1 is closed
Siren	SIREN	Switcher	0 is open, 1 is closed
DI0	DI0	Switcher	0 is open, 1 is closed
DI1	DI1	Switcher	0 is open, 1 is closed
DI0 pulse count value	COUNT	Value	True value = original value,integer
DI1 pulse count value	COUNT1	Value	True value = original value,integer
AIN0	AI0	Value	True value = original value,With two
			decimals
AIN1	Al1	Value	True value = original value,With two
			decimals
Temperature	TEMP	Value	True value = original value,With two
			decimals
Battery 1 voltage	BAT1	Value	True value = original value,With two
			decimals
Battery 2 voltage	BAT2	Value	True value = original value,With two
			decimals
Battery 3 voltage	BAT3	Value	True value = original value,With two
			decimals




## **Battery Management Alarm System BMS100**

Battery 4 voltage	BAT4	Value	True value = original value,With two
			decimals
Battery total voltage	BAT	Value	True value = original value,With two
			decimals
Power supply voltage	EXTPWR	Value	True value = original value,With two
			decimals

The End! Any questions please help to contact us feel free. Http://www.IOT-Solution.com