DC Power Online Remote monitoring system

Overload alert by SMS.

Supports Modbus TCP, can integrate to SCADA, HMI, DSC directly

GSM/SMS/GPRS/3G/4G/Ethernet Cellular DC Power Measuring RTU



Cellular Charger/Solar Panel/Battery DC Power Remote Monitoring Application

KING PIGEON



S255/6 User Manual Ver 1.0

Date Issued: 2017-11-23 King Pigeon Hi-Tech. Co., Ltd.

www.4G-RTU.com



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This handbook has been designed as a guide to the installation and operation of S255/6 Cellular DC Power Measuring RTU.

Statements contained in the handbook are general guidelines only and in no way are designed to supersede the instructions contained with other products.

We recommend that the advice of a registered electrician be sought before any Installation work commences.

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UPGRADE HISTORY

DATE	FIRMWARE VERSION	HARDWARE VERSION	DESCRIPTION



Model List

Model	Description	DIN	AIN/PT100	Relay	TH	Measure Range
S251	Cellular Single Phase Electric Measuring RTU	4	×	2	1	Default: 260VAC, 5A; Optional: 100V, 450V, 1A, 20A, 50A, 100A.
S252	Cellular Single Phase Electric Measuring RTU (LED Display)	4	×	2	1	Default: 260VAC, 5A; Optional:110V, 2.5A, 10A, 15A, 20A, 30A.
S253	Cellular 3-Phase Electric Measuring RTU (3P3W,3P4W, for Transformer)	4	4*	2	1	Default: 500VAC, 10A; Optional:5A
S254	Cellular BTS Electric Measuring RTU(separately measure the diesel generator power and electricity power parameters)	4	×	2	1	Default: 260VAC, 5A; Optional:70V,120V,450 V, 1A
8255	Cellular 2-Channel DC Electric Measuring RTU (LED Display)	4	×	2	1	Default: 60VDC, 100A; Optional:100V,260V,45 0V,500V, 5A,20A,50A
S256	Cellular 5-Channel DC Electric Measuring RTU (LED Display)	4	×	2	1	Default: 60VDC, 100A; Optional:100V,260V,45 0V,500V, 5A,20A,50A
Notice	 Default version is GSM/GPRS module and Ethernet Module inside. For 3G WCDMA, 4G LTE, NB-IoT version, please tell our sales where would you like to use them. The S25x are powerful to extend additional I/O or meters, please contact us if you have special requirements. If the measurement ranges are exceed the default and optional range, then should plus PT and CT. For S253, the 4AIN/PT100 inputs are optional Module for monitoring the oil temperature and level or other analog inputs, if required, please inform the sales to plus it. 					

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GSM/SMS/GPRS/3G/4G/Ethernet Cellular DC Power Measuring RTU

1. Brief introduction

The Cellular (GSM/GPRS/3G/4G/Ethernet) DC Electric Measuring RTU is special designed for remote monitoring 2/5channel DC electricity power. Measure each channel voltage, current, active power, active energy and re-active energy. When overload or exceed the pre-set value, then it will alert by SMS, Voice call, Cloud, APP, Wechat, Web Server, SCADA, HMI, DSC immediately.

The Cellular DC Electric Measuring RTU is an industrial class, high reliability, high stability, and programmable Remote Terminal Unit (RTU). It embedded 32-Bit High Performance Microprocessor MCU, integrated special measurement chip and inbuilt industrial Cellular module. It provides 4 digital inputs, 2 relay outputs, 1 ambient sensor input for monitoring onsite temperature and humidity.

The Cellular DC Electric Measuring RTU can monitoring and operates the I/O ports by SMS, APP, Web Server, internet, timers and programmed inter-lock events automatically.

The Cellular DC Electric Measuring RTU inbuilt TCP/IP protocol stack over cellular network or Ethernet to make it suitable for internet of things (IoT) applications, it can be easily to operate by the provided cloud, app, and web server, or integrated to you IoT applications according to the TCP/UDP protocol, or integrated to SCADA systems by standard Modbus TCP protocol, too. This is very useful if you need remote control onsite devices with low cost solution.

The Cellular 3-Phase Electric Measuring RTU inbuilt TCP/IP protocol stack over cellular network or Ethernet to make it suitable for internet of things (IoT) applications, it can be easily to operate by the provided cloud, app, and web server, or integrated to you IoT applications according to the TCP/UDP protocol, or integrated to SCADA systems by standard Modbus TCP protocol, too. This is very useful if you need remote control onsite devices with low cost solution.

2.Safety Directions



Safe Startup

Do not use the unit when using GSM/3G/4G equipment is prohibited or might bring disturbance or danger.

Interference

All wireless equipment might interfere network signals of the unit and influence its performance.

3. Standard Packing List of S255/S256

Cellular IoT Gateway(S278 Special version) X1; GSM/3G/4G Antenna X1;User Manual X1; PC Configurator X1 DC Power Meter PMD200(or PMD500)x1, 240Vac to 24VDC power adaptor x1.

Note: The package does not include any SIM card.

4. Mainly Features

- Can be operated from anywhere, no distance limitation;
- Quad band 850/900/1800/1900Mhz GSM GPRS Module inside.
- 3G/4G Modules are optional;

GSM/SMS/GPRS/3G/4G/Ethernet Cellular DC Power Measuring RTU

- Modular design, can easily upgrade the cellular module if network upgrade;
- Embedded ARM[®] Cortex[™]-M4 32 Bit RISC Core, 168 MHz inside, RTOS system, reliable performance with in-built watchdog;
- Powered up by 85~264VAC,120~370VDC or 12~36VDC directly, with over voltage and phase-reversal protection;
- Measurement range: Default: 60VDC, 100A; Optional: 100V, 260V, 450V, 500V, 5A, 20A, 50A,1000A;
- Measure each Channel DC power parameters: current, voltage, active power, active energy and re-active

energy;

- > 4 digital inputs, compatibles dry and wet contact;
- > 2 relay output (5A/30VDC, 5A/250VAC), compatibles pulse outputs;
- > 1 ambient sensor input for monitoring onsite temperature and humidity;
- Supports current, voltage, active power, active energy and re-active energy exceed threshold alarm;
- > Inbuilt inter-lock logic programmer and powerful timer program function;
- Resend the data while communication failure and alert to users by SMS;
- > Inbuilt TCP/IP protocol stack, supports cloud, APP and web server applications.
- Supports Modbus TCP protocol, can integrate to SCADA, HMI, DSC directly.
- Integrated 1 Industrial 10/100M adaptive Ethernet module inside, supports Modbus TCP;
- Supports SMS Alert when overload, I/O triggered or recovery, and external power lost or recovery;
- Provides 1 channel DC power source output for external device, saving wiring cost;
- > Up to 10 SMS Alert and dial numbers, can program to receive specified alarm message.
- Inbuilt 4M internal memory to save historical data and events;
- Inbuilt large capacity automatically rechargeable backup battery;
- Industrial class design suitable for long time work applications;
- using metal shell, protection class IP67. Metal shell and system security isolation, especially suitable for industrial applications in the field;
- > L395 * W240 * H80mm, weatherproof metal enclosure.

4. 1 Specifications

Item	Reference Scope
Power supply	Default: 47~63Hz, 85~264VAC, or 120~370VDC, Optional: 12-36VDC
Power consumption	Standby:100mA; Working Max.: 300mA
GSM Frequency	850/900/1800/1900Mhz
3G/4G/NB-Iot	Optional: WCDMA/TDD-LTE/FDD-LTE/NB-IoT
TCP/IP stack	TCP,UDP
SIM interface	Supporting 3V SIM Card
External antenna	SMA Antenna interface, 50 Ohm, Gain: 3dB
USB	1 USB Port can be used for configuring and export records.
Ethormot	1 Industrial 10/100M adaptive Ethernet module inside, supports Modbus
Linernei	TCP.
DS/185	1 RS485 port reserved supports Modbus RTU Master to extend I/O or
N3403	Meters.
Drotocola	SMS, GPRS UDP, TCP, Modbus RTU, Modbus TCP and more equipment
TIULUCUIS	protocols can be added according to requirements.
Measure Range	Default: 60VDC, 100A;Optional:100V,260V,450V,500V, 5A,20A,50A;
Measure	2/5-Channel DC power: current, voltage, active power, active energy,
Parameters	re-energy.



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	Current Voltage: ±0.2%FS, Power: ±0.5%FS, Active Energy: Class 1,
Precision	Re-Active Energy: Class 2. 24Bits resolution AD special measure chip with
	sampling frequency 0.1 S.
Digital Inputs	4 Digital input, NC/NO type;
Temp.&Hum Inputs	Temperature range: -40 °C to +80 °C, Humidity Range: 0~100%RH;
Relay Outputs	2, Rated: 5A/30VDC,5A/250VAC
Memory Capacity	Internal 4M memory for saving historical data and events.
Backup Battery	3.7V 1200mAH
Temperature range	-10-+70 °C
Humidity range	Relative humidity 95% (condensation free)
Exterior dimension	395mm*240mm*80mm
Net Weight	1500g

5. Physical Layout and Installation Diagram

The S255/6 is a specialized solution for remotely online monitoring the DC power consumptions. It consists of below items:

- 1) Cellular IoT Gateway: Controller, for communication with the server, and manage the Smart Meters, processing data, etc. it is a specialized version of S278.
- 2) PMD200/PMD500 DC power meter with RS485 Serial port for communication with the S278.
- 3) Power Adapter: Converting the onsite power from 85~264VAC@47~63Hz, or 120~370VDC to 24VDC, to power on the Cellular IoT Gateway S278, Smart Power Meter, and other transducers or detectors.
- 4) Connectors: All of the above-mentioned items were wired corrected inside already, the users can connect the rest of wires from the connectors directly.

Tips:

(1) The internal connections with S278 Cellular IoT Gateway, Power Adapter, Power meter, Tamper Switch, power supply, and RS485 communication cables are connected correctly already, the user no need to re-connect them again.

(2) The user should connect below wires: External power supply to Power adapter, CT to PMD200/500, Additional Digital inputs or relay outputs or temperature & humidity sensor only. Install the cellular antenna.

5.1 Control Unit basic combination and physical layout



10M/100M Ethernet USB ANT		
KING PIGEON ull Relay Relay S278 Alarm S278 Status Cellular IoT Rs485/232 Modbus Gateway Ethernet PWR		
$SMS \rightleftharpoons Modbus RTU \rightleftharpoons Modbus TCP$ $C \in RoHS FC $ $(C = RoHS FC)$ $C = RoHS FC $ $RS48522$ $C = RoHS FC $ $RS48522$		
DC24VIN Tamper Switch	RS485 D	C24V IN
000000000 00000000 000000000 00000000 000000000 00000000 000000000 00000000 000000000 00000000 000000000 00000000 000000000 00000000 000000000 00000000 000000000 00000000 000000000 00000000	B-A+GNDV+	
85 ² 264VAC 120 ³ 70VDC ^{IN} DC24V OUT		
] Tan	• nper Switc

5.2 The S278 LED and Interface Instruction:





5.3 The S278 Connection Diagram



• and •, power Connector Definition (DC9~36V)

DC Out=DC In Voltage, DC Out have Reverse protection.		
DCIN9~36V (+)	Connect to DC power, positive electrode +	
DCIN9~36V (-)	Connect to negative electrode	
	Power source output port, positive electrode. Provides power from RTU to external	
DC Out (+)	transducers or sensors or detectors.	
DC Out (-)	Power source output port, Negative electrode	

3, Digital Inputs Definition (4 Channel)

Dry contact or wet contact. Logic level: 0~1V or short circuit treated as close, +3~30V or open circuits treated			
as open. One of the input can be used as counter, sampling frequency is 1Khz.			
DIN1~4	Digital input, positive electrode		
GND GND for digital inputs, negative electrode.			

Notice: The DIN1 has been used as Tamper Switch, and wired already.

(, Temperature Humidity Sensor Port Definition

т/н	Temperature & Humidity sensor AM230x input. Measurement Range: Temperature: -40°C to +80°C, Humidity: 0~100%RH.		
Temperature &	VCC	3.3VDC Power Source output for sensors. Connect to AM230x Sensor VCC wire (Red wire).	
Humidity Input	GND	GND , Connect to AM230x GND wire, (black wire).	
	Data	Data port, connect to the AM230x Data wire, (Yellow/Green wire).	



AM2301 PIN Difinition



Digital Solid Relay Output Connector Definition (Two Channel)

Solid Relay inside for outputs, Rated Capacity: 5A/30VDC,5A/250VAC.		
1+/1-	The 1st Channel Solid Relay Output. + stands for positive electrode, - stands for negative electrode.	
2+/2-	The 2nd Channel Solid Relay Output. + stands for positive electrode, - stands for negative electrode.	

RS232/RS485 Ports Definition (Default RS485, RS232 is optional)

(T)TXD	Data Transmit
(R)RXD	Data Receive
GND	Ground
A/B	RS485 A /B

Tips: Default RS485, support Modbus RTU Protocol, used as Modbus Master, support function code 01, 02, 03, 04,06.

Ø, Ethernet Port Definition



Ethernet

RJ45 port for connect internet, WAN or LAN.

Ø, USB Port Connector Definition

```
USB USB port, for configuration and upgrading firmware and exporting historical data.
```

9, ATN Port Connector Definition



Backside Switch & Button Definition			
SIMCard Holder	For SIMCard Installation, only supports 3V SIMCard, not supports 5V Simcard.		
Power Switch	For switch ON or OFF the RTU.		
Upgrade Firmware Button	For upgrade firmware purpose only. Only when upgrade new firmware version		
	will use it. Refer the firmware upgrade manual.		

5.4 The Power Meter Connection Diagram





1234							
Definition							
Name	Definition	SN	Name	Definition			
V+	10~30VDC Power Input Positive	24	+15V	Output +15VDC Power for Hall Transducer			
V-	Power Input Negative	23	-15V	Output -15V Power for Hall Transducer			
PGND	Grounding protection	22	0V	Output Power GND			
A+	RS485 A	21	IN1	The 1 st Channel Hall Transducer input			
B-	RS485 B	20	IN2	The 2 nd Channel Hall Transducer input			
	Name V+ V- PGND A+ B-	Name Definition V+ 10~30VDC Power Input Positive V- Power Input Negative PGND Grounding protection A+ RS485 A B- RS485 B	NameDefinitionSNV+10~30VDC Power Input Positive24V-Power Input Negative23PGNDGrounding protection22A+RS485 A21B-RS485 B20	DefinitionNameDefinitionSNNameV+10~30VDC Power Input Positive24+15VV-Power Input Negative23-15VPGNDGrounding protection220VA+RS485 A21IN1B-RS485 B20IN2			



6	GND	RS485 GND	19	IN3	The 3 rd Channel Hall Transducer input
7	MC1	-Not Used-	18	IN4	The 4 th Channel Hall Transducer input
8	DI1	-Not Used-	17	IN5	The 5 th Channel Hall Transducer input
9	DI2	-Not Used-	16		-Not Used-
10	GND	-Not Used-	15	Ui	DC Voltage Positive
11	D01	-Not Used-	14		-Not Used-
12	DO2	-Not Used-	13	UN	DC Voltage GND

6. Initialize/Reset the unit

The Unit can be reset to factory default once mistake programmed. Please follow below steps to initialize it. After initialized, the parameters will set as factory default.

- 1) Switch the unit on, connect it to PC configure software, click "Reset System" button to reset the panel.
- 2) Or remote reset via SMS Command.
- 3) After reset successfully, switch the unit off and restart it, then enter into working mode of factory default.

7. Settings&Operation

The S255/6 is user-friendly design. Only need to configure the Cellular IoT Gateway, the meters no need to configure any more. The user can setup it or export historic data by the PC Configuration through USB cable, and upgrade firmware by USB port. The S255/6 also can be configured some basically parameters by SMS Commands, please refer to <u>Command List chapter.</u>

All of the settings are in the Cellular IoT Gateway.

Tips!

- 1) Please insert the SIM Card firstly, and install the GSM/3G/4G Antenna, please power on to check the LEDs status according to above mentioned LED Definitions, keep switch on it during the programming.
- 2) The PC Configuration in the CD, please click it to run it. Also can download from <u>www.GPRS-M2M.com</u> under S255/6 page directly.

Below are the steps to setup the parameters by PC Configuration, please follow it step by step.



Start to Configure:

Step1: Install the Configurator

The Configurator in the CD or download from <u>www.GPRS-M2M.com</u>, then installs it on the computer.

Step2: Connection

Please insert the SIM Card, and install the GSM/3G/4G Antenna.

Step3: Connect the Gateway to the PC by USB Cable, and switch on the S278, see below:



Step4: Install USB Drvier

Install the USB Driver to the computer from the CD firstly. When successful, it can be found out at the device manager of the XP or Windows 7 or Win8/Win10, please see the below photo. Also, the driver for different OS can be downloaded from Silicon Laboratories, Inc. <u>http://www.silabs.com</u>, the model is CP210x.

🚔 Device Manager	- 0 <mark>- X</mark>
File Action View Help	
🖌 🚔 Sammy-PC	
🛛 🕞 🦢 Batteries	
⊳	
Disk drives	
📄 👂 📲 Display adapters	
DVD/CD-ROM drives	
▶ · 🕁 IDE ATA/ATAPI controllers	
🔉 🖓 🔚 Imaging devices	
⊳ Ceyboards	
▶ - 🖑 Mice and other pointing devices	
Monitors	
Network adapters	
Ports (COM & LPT)	
Silicon Labs CP210x USB to UART Bridge (COM3)	
Processors	

Step5:

Run the Configurator (Compatible with Windows XP/7/8/10)

Tips: In some computer, it required download net framework 4.0 while installation, then please click "Yes" to go to Microsoft website to download this service pack.

Step6: Choose the correct "COM port" in device manager above, enter the password(default is

1234), click the "Login" to connect and start to program

Details please check the picture as below:

Serial	COM1		
	· Loonal and a second	💋 Login	Logout
Password	****		10

Tips: If not connect successfully, will not enter into next step. Pls check if USB connect well, or COM port and password correct or not.

Basic Settings

Reminder:

Please click the "Read setting" to read out the default parameter before starting to

set.this is very important to save you configure time.

The default values are preset in the Cellular IoT Gateway already, so please remember to read out it before you change any other settings. Click Read Settings---Read Setting to read out the default values. Then you can start to change the settings and start to configure the other parameters.

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🔂 S253 V1.0		
📋 File(R) <u>3</u> Connect [🦪 Read Settings(T) 🜔 Save Settings(U) 불	Skins(V) 🂮 Language(W) 🌋 System(X) 🍙 About(Y) 📙 Help(Z)
🛃 Basic Setting	🛃 Basic Setting 💊 Add Modbus Slave 📦	Register List 🕃 Historical Record
🗴 Number Setting	Basic Number Setting DI/DO/T	H Setting 📲 Timer Setting 🔶 Communication Setting 🔮 Related SMS
😂 DI/DO/TH Setting	Basic Setting	→ Device ID(0-65535)
🖕 Timer Setting		
Communication Setting	Armed automatically when power on Add Timestamp to Norm SMS	Device Description(Max.60 characters)
Related SMS	Disable communication monitoring	→ Periodically Save historical Data period(Range:0-65535sec)
🚸 Add Modbus Slave	Daily report state SMS at	
😜 Register List	0:00 +	→ Interval of resend state SMS to phonenumber(Range:0-65535min) → SIM Card Phone No(Device)
Historical Record		
		 Timespan of automatically Rearm after disarm(Range:0-65535min)
	New Password	Device time Setting
	→ New Password(4 Digits)	2018-02-28 12:06
	Display password	Save 🕼 Read 💽 Sync PC Time

Reminder:

Please remember that click "Save Setting" - " Save" button to save it after parameter be written, below is the same.

Je Basic Setting	😓 Basic Setting 💊 Add Modbus Slave 📦	Register List 🔋 Historical Record
Basic	Basic Number Setting DI/DO/TH Firmware Version Model No: S278 Firmware Version 3EV Basic Setting	I Setting 📲 Timer Setting 🚸 Communication Setting 🕡 Related SMS
Number Setting		→ Device ID(0-65535) 1 → Device Description(Max.60 characters)
😫 DI/DO/TH Setting	Add Timestamp to Alarm SMS	A413,B Building, Western Silicon Valley, 5010 Bao'an Road, B → Timer of ensure power supply alarm(Range:0-999min)
🖕 Timer Setting	✓ Disable communication monitoring	1 → Periodically Save historical Data period(Range:0-65535sec):
Communication Setting	Daily report state SMS at	60 → Interval of resend state SMS to phonenumber(Range:0-65535min)
Related SMS		360 → SIM Card Phone No(Device)
象 Add Modbus Slave		10086
📦 Register List		1
Historical Record	New Password	Device time Setting
	→ New Password(4 Digits)	2017/11/ 6 🔹 10:36 🛓
	Display password	💰 Save 🗀 Read 💽 Sync PC Time

Device ID: (0~65535) non-necessary. This is mainly for monitoring center to identify the gateway; If communicate via Modbus protocol, device ID only can be 1~255.

Device description: This is the description of the gateway, e.g.: installation address, usage instructions and so on;(Max: 60 Characters)

Time to ensure power supply fail alarm: Power failure alert (0~999 min), default 0, means SMS alert immediately once power off; 999 means not alert.

Periodically to save historical data record: (0~65535 s), how many seconds interval to save record, default 0, means

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not save.

Interval time to send SMS report: (0~65535 min), how many minutes interval to SMS report current status, default 0, means not report.

Device SIMcard Phone no.: The gateway can mobile operator's date & time for the timer function, according to the device phone no.; Pls payment attention to the country code when setting. Eg: "No country code","+86" or "0086" in China.

Time Auto Arm after Disarmed: Fill the timeout to enter into Armed Mode automatically after disarmed operation. (0~9999 min), default 0 minute, means it will delay 30 seconds to auto Arm after Disarmed.

Device Time Setting:

Save: Click it to save the time into the device after adjust the time.

Read: Read device current time.

Sync PC Time: Read PC current time.

Arm automatically when power on: Tick it stands for once the gateway powered up, the gateway will enter into Arm Mode automatically.

Tips:

Arm: Under this mode, any alarm occurrence will send SMS and dial the authorized numbers immediately. And execute the programmed I/O outputs.

Disarmed: Under this mode, alarm occurrence will not send SMS & dial the authorized numbers.

Add timestamp to alarm SMS: Tick it stands for while alarm occurrence, the Alarm SMS will include the gateway's current time information at the SMS Content.

Disable Communication Monitoring: Tick it stands for no monitor function; Otherwise, once communication

between Master and Slave failed, the Master will send SMS to inform the communication failed, used for port monitoring between Master and its Slave.

Daily SMS Report: Set it stands for when send SMS to report current status everyday.

New Password: Change a new password. (4 digits, default is 1234, Arabic numerals only)

Number Settings

Reminder:

Please remember that click "Save Setting" - " Save" button to save it after parameter be written, below is the same.

	🔄 💟 Bas	ic 🔄 Number Setting 🕻	DI/DO/TH	Setting 🛛 🚡 Timer Set	ting 🛛 💛 Communication 🕄	Setting 🛛 🔍 F	Related SMS		
Number Setting	Alarm T	elephone Number							
	No.	Alarm Tel Number	Dial	Timer-Report	Arm/Disarm SMS	Alarm	Alarm Recovery	External Power ON/OFF	GPRS Fail
	1	15012741010	YES	YES	YES	YES	YES	YES	YES
Number	2		NO	NO	NO	NO	NO	NO	NO
- Number	3		NO	NO	NO	NO	NO	NO	NO
	4		NO	NO	NO	NO	NO	NO	NO
	0		NO	NO	NO	NO	NO	NO	NO
	7		NO	NO	NO	NO	NO	NO	NO
UI/DO/TH Setting	8		NO	NO	NO	NO	NO	NO	NO
	9		NO	NO	NO	NO	NO	NO	NO
🖏 Timer Setting	10	008615012741010	YES	YES	YES	YES	YES	YES	YES
- ·····									
Communication Setting									
Related SMS									
• • • • • • •									
Slave Add Modbus Slave	e								
)		•
Register List	 Numbe 	r Setting							
				All					
-	Alarm T	el Number(Max.21 Digits)		Dail					
Historical Record									
		Timer-Report							
		C Arm/Disarm							
				Alam					
				Alarm Recovery					
	📄 📄 📩 M	lodify	External Power ON/OFF						
				GPRS Failure					
		Delete							
				Low GSM Signal					
	Clear Realy ON/OFF(close or open)								

Alarm Tel Number: Set the alarm receiver numbers, please includes the country code, e.g. in China is 0086, input 008613570810254, if cannot received the SMS or dial, then try to set as +8613570810254, but cannot be



8613570810254. Also, some GSM/3G Operators not required input country code, so please remove country code, e.g. in China is 0086, and China Mobile not required country code, so can set as 13570810254. (Max 10 authorize users no. and Max 21 digits for users no.).

Dial: Tick it stands for enable while alarm, Dial to the authorized numbers. When someone answer, then calling stop; If not, continue to call next number, total calling one round. If slave alarm when polling, gateway only send SMS, not calling.

Timer-Report: Tick it stands for enable to SMS report to this authorized numbers.

Arm/Disarm SMS: Tick it stands for enable the SMS notification when Arm/Disarm.

Alarm: Tick it stands for enable while alarm, send SMS to the authorized numbers.

Alarm Recovery: Tick it stands for enable the SMS notification when the alarm recovery to normal value.

External Power ON/OFF: Tick it stands for enable the SMS notification when external power on/off.

GPRS Failure: Tick it stands for enable the SMS notification when the GPRS connection failure.

Low GSM Signal: Tick it stands for enable the SMS notification when the GSM signal is weakness.(Well signal value:14~31).

Relay ON/OFF(close or open): Tick it stands for enable the SMS notification when the relay ON/OFF.

All: Tick it stands for enable all of options in this line, from "Dial ~ Relay ON/OFF".

Reminder: Also can set these parameters via SMS Command, details refer to SMS Command List file, below is similar.

DI Settings

	DI Setting						
Channel	Channel Name	Input Type	Current Status	Alarm Verify Time	Alarm SMS Content		
DIN1	DIN1开关量1开关量1	Close		5	报警了alarmbaojingle		
DIN2	DIN22	Close		2	Alarm		
DIN3	kaiguanliang3通追3	Open		2	报警了alarmbaojingle3333555566		
DIN4	DIN4	Upen		10	alarm		
< <u> </u>					•		
DI Setting → Channel Na	me(Max.40)						
DIN1							
Input Type							
Disable V							
Alarm Varify	Time/Pange:0.65525c)						
	nine(ixalige.0=0000008)	🖌 E	Enable Recovery Send SMS				
2			Modify				
→ Alarm SMS C	Content(Max.40)		Moully				
Alarm			Delete				
→ Recovery SN	IS Content(Max.40)						
Recover		- A	È Clear				
í .							

Tips: Click the left "DI/DO/TH Setting button" to set the parameter, below is similar.

Channel Name: To setup the channel name, default "Input + Serial number ",max 40 digits.

Input Type: Disable means: Not use this channel;

Normal Open means: For connecting normal open type detector, close will alarm;

Normal Close means: For connecting normal close type detector, open will alarm.

The inputs compatibles dry and wet contact: 0~1DVC, NC (0) ; 3~30DVC, NO (1).

Current Status: Right click the DIN display, then we can choose to read the current status or refresh the value of the sensors, used for testing.

Alarm Verify Time: Stands for when the digital input Close or Open last time more than this value,

will be treated as a true alarm, if less than this value, then will not alarm. (Range: 0~65535s), default 2 seconds. Alarm SMS Content: To setup the SMS Content when alarm, max 40 digits.

Recovery SMS Content: Stands for when the digital input recovery, will send SMS to the authorized numbers, max

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40 digits.

Enable Recovery Send SMS: Tick it for sending Alarm/Recovery SMS to the authorized numbers.

DO Settings

				DO Set	ting	
DI/DO/TH Setting	Channel	Channel Name	Close Tim	e Current Status	Open Description	
DI	DOUT1 DOUT2	jidianqi11继电器111 jidianqi222222	1 0		DUANKAILEDUANKAILEDUANKAILE DUANKAIKEDUANKAILE2222	
DO						
TH						
🛍 Timer Setting						
Communication Setting						
	•					
W Related SMS	DO Setting					
• • • • • • •	→ Channel Nam	ne(Max.40)				
Slave Add Modbus Slave	DOUT1					
😥 Register List	→ Close Time(R	Range:0-65535sec)		Enable Recovery SMS Alert		
Historical Record	→ Open Desripti	ion(OFF,Max.40)		🚖 Modify		
-	Open					
	→ Close Desript	tion(ON,Max.40)		Delete		
	Close			👮 Clear		
	- Mannual Test b	by Click the below Button				
	a OFF(1)	🖉 ON(1)	A OFF(2)	崖 ON(2)		

Channel Name: To setup the channel name, default "Relay + Serial number ",max 40 digits.

Close Time: Stands for the relay close and last time. (0~65535s), default 0 second, means always close.

Open Description: SMS content when relay open, max 40 digits, default open.

Close Description: SMS content when relay close, max 40 digits, default open.

Current Status: Relay current status: Open or Close. Right click the DO display, then we can choose to read the

current status or refresh the value of the sensors, used for testing.

Enable Recovery SMS Alert: Tick it to enable the recovery SMS function after relay finish working.



Manual Switch: Close or Open the relay (DO1 and DO2) immediately, used for on-site testing.

TH Settings

	DI Setting DO Setting	TH Setting						
			Tempe	erature and Humin	nity Setting			
DI/DO/TH Setting	Channel	Channel Name	Current Value	Enable	Alarm Verify Time	Threshold Hi	Threshold Lo	
	Temperature	WENDUitemperature1111111		YES	3	35	-10	
DI	Humidity	WENDU2shidu湿度2222222		YES	30	88	10	
DO								
TH								
····	1							
imer Setting	Tam/I lum Oatting							
• Communication	Tem/Hum Setting							
Setting	→ Channel Name(Max.4	0)						
5	Temperature	Enable						
Related SMS	→ Alarm Verify Time(Ran	ge:0-65535sec) I Enable Recovery SMS	SAlert					
	2							
Salar Add Modbus Slave	→ Threshold Hi							
-	80							
😥 Register List	→ Threshold Lo							
÷	-40							
R Historical Record	→ High Alarm SMS Conte	ent(Max 40)						
0	High Alarm	x *	🔶 Modify					
	→ Low Alarm SMS Conte	nt(Max 40)						
	Low Alarm	in(indx.+o)	🕄 Delete					
	Bassues ONO COstes							
	→ Recovery SMS COnter	II(Max.40)	Close					
	Recover		Mar Clear					
	High Alarm → Low Alarm SMS Conte Low Alarm → Recovery SMS COnter Recover	nt(Max.40) 1t(Max.40)	Delete					

Enable: Tick it to enable this Channel.



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Channel Name: Default "Temperature or Humidity + Serial number ", max 40 digits.

Alarm Verify Time: Tick it Stands for when the temperature or humidity input exceed the threshold value and last time more than this value, will be treated as a true alarm, if less than this value, then will not alarm to avoid fault alarm. (0~65535s), default 2 seconds.

Threshold High: The high value(reached) need to alarm; Example: set 50Celsius degree to alert.

Threshold Low: The low value(reached) need to alarm; Example: set -30Celsius degree to alert.

Temperature & Humidity range : -40° C ~80 $^{\circ}$ C / 0~99%, RH%

Default Threshold High/Low: Temperature 80 $^\circ$ C / -40 $^\circ$ C and Humidity 100 RH% / 0 RH% .

Current Value: Right click the Temperature / Humidity display, then we can choose to read the current status or refresh the value of the sensors, used for testing.

High Alarm SMS Content: To setup the SMS Content when high alarm, max 40 digits.

Low Alarm SMS Content: To setup the SMS Content when low alarm, max 40 digits.

Recovery SMS Content: Setup SMS Content when value back to normal from alarm, max 40 digits.

Enable Recovery SMS Alert: Tick it to enable the Temperature & Humidity value Recovery SMS

notification function.

Timer Settings

No. Enable Weekly Hour Minute Action 1 YES Sunday 8 0 2Auto Report BySMS Timer Setting 1 YES Everyday 8 8 0 2Auto Report BySMS 3 YES Everyday 8 8 7.D01 Close(ON) 3 9.D02 Close(ON) 4 YES Monday 10 3 9.D02 Close(ON) 6 7 YES Tuesday 10 10.D02 Open(OFF) 6 7 10.D02 Open(OFF) 6.Disarm 7 6.Disarm 9 10 YES Wednesday 5 0 S.Arm 10 * Bay of yeek Sunday	Number Setting	Timer List					
• Undoff resetting 1 YES Sunday 8 0 2.Auto Report By SMS • Timer Setting 2 YES Everyday 8 8 7.D01 Close(ON) 3 YES Everyday 8 56 6.8D01 Open(OF) 4 YES Monday 10 3 9.D02 Close(ON) 4 YES Monday 10 3 9.D02 Close(ON) 6 7 7 9 1 0 10.D02 Open(OF) 6 7 9 1 0 10.D02 Open(OF) 8 O Tomunication 9 1 0 0 0 9 1 10 YES Wednesday 5 0 S.Arm 10 YES Wednesday 5 0 S.Arm Fable Suday * 10 S.Arm 20 20 20 Fable Suday * Modif 20 20 20 20 20 <th></th> <th>No.</th> <th>Enable</th> <th>Weekly</th> <th>Hour</th> <th>Minute</th> <th>Action</th>		No.	Enable	Weekly	Hour	Minute	Action
2 YES Everyday 8 8 7.D01 Close(0N) 3 YES Everyday 8 56 8.D02 (Does(OF)) 4.4 YES Monday 10 3 9.D02 (Does(OF)) 5 YES Tuesday 10 10 10.D02 Open(OFF) 6 - - - - - 7 - - - - - 8 YES Everyday 10 10.D02 Open(OFF) - 8 YES Everyday 10 10 - - 8 YES Everyday 12 0 6.Disarm 9 - - - - - 8 Add Modbus Slave - - - - • Add Modbus Slave - - - - - • Bay of veek Sunday • - - - - • Historical Record - Deletet	DI/DO/TH Setting	1	YES	Sunday	8	0	2.Auto Report By SMS
3 YES Everyday 8 56 8.DO1 Open(OFF) 4 YES Monday 10 3 9.DO2 Close(ON) 5 YES Tuesday 10 10.002 Open(OFF) 6 Image: Section of the sectin of the section of the section of the sectin of the sect	The Carting	2	YES	Everyday	8	8	7.DO1 Close(ON)
Image 4 YES Monday 10 3 9.D02 Close(0N) Image 5 YES Tuesday 10 1000 1000 2000 Close(0N) 6 7 6 7 10 10 1000 2000 Close(0N) 6 7 6 7 10 10 1000 2000 Close(0N) 6 7 6 10 10 10 1000 2000 Close(0N) 6 7 6 10 7 10 10 10 10000 6.Disarm 9 9 9 10 YES Wednesday 5 0 5.Arm 10 YES Wednesday 5 0 5.Arm 6 Add Modbus Slave	ilmer Setting	3	YES	Everyday	8	56	8.DO1 Open(OFF)
5 YES Tuesday 10 10 10.D02 Open(OFF) 6 - </th <th></th> <th>4</th> <th>YES</th> <th>Monday</th> <th>10</th> <th>3</th> <th>9.DO2 Close(ON)</th>		4	YES	Monday	10	3	9.DO2 Close(ON)
Image 6 -		5	YES	Tuesday	10	10	10.DO2 Open(OFF)
7 1	Timers	6					
8 YES Everyday 12 0 6.Disarm 9 - - - - - 9 10 YES Wednesday 5 0 5.Arm 6 Add Modbus Slaw - - - - - • Add Modbus Slaw - - - - - • Inter Setting - - - - - • Bay of veek - - - - - • Inter Setting - - - - - • Inter Setting - - - - - • Register List - - - - - • Minute - - - - - • Minute - - - - - • Action - - - - -		7					
• Communcation Setting 10 • PES • Wednesday 5 0 • SArm • Sa		8	YES	Everyday	12	0	6.Disarm
Jo YES Wednesday 5 0 5Arm Image: Add Modbus Slaw Im	Communication Setting	9					
Related SMS Add Modbus Slave Enable Register List * Bay of week Sunday * Historical Record 0 * Mouth* 0 * Action 0. Reboot	Setting	10	YES	Wednesday	5	0	5.Arm
Add Modbus Slave Imar Setting Imar Dele Imar Delet Imar Delet <th>Related SMS</th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th>	Related SMS						
 Add Modbus Slave □ Enable □ Enable □ Enable □ Bay of week Sunday ▼ □ Historical Record □ ▼ □ ▲ Modify □ ↓ □ ↓<th></th><th>Times Cotting</th><th></th><th></th><th></th><th></th><th></th>		Times Cotting					
 Register List Day of wek Sunday - Historical Record Mour Minute Delete Action Rebot Clear 	象 Add Modbus Slave	Timer Setting					
Register List → Day of week Sunday ▼ Sunday ▼ Sunday ▼ Historical Record → Hour → Huinte ▲ Modify 0 ▲ Modify 0 ▲ Action 0. Reboot ② Clear		Enable					
Sunday * Historical Record 0 Minute Minute Minute 0 Action 0. Reboot	📦 Register List	→ Day of week					
Historical Record → Hour 0 Ninute ▲ Modify Nebot ☑ Delete D. Reboot ☑ Clear		Sunday 🔻					
→ Minute 0 → Action 0. Reboot → 2 Clear	Historical Record	→ Hour					
→ Minite 0 → Action 0. Reboot → Clear							
→ Action 0. Reboot Clear		→ Minute	i wouly				
0. Reboot		U +	🚨 Delete	J			
		Action	- Cloar				
		U. KEDUUL	₹ <u>Z</u> Clear				
Notice:Tick it stands for Enabling the Timer,otherwise will be invalid		- Notice:Tick it stands for	Enabling the Timer, otherwise will be invalid -				

Tips: Pls remember to choose "Enable" when setting, otherwise the setting will be invalid. And timer function need the gateway have set the correct time first.

This page is for setup daily timer, it is useful for scheduling when to execute what action automatically. Total can program 11 scheduling events. Tick Enabled stands for enable this timer event:

Weekly(Everyday) + Hour + Minute: Stands for what day and at what time does the gateway should execute the action.

Action: Stands for what action does the gateway should to execute at the specified time.

E.g.: as above mentioned,

Every Sunday 01:20, Gateway automatically Reboot.

Every Monday 03:10, Gateway upload data by GPRS to server.

Every Tuesday 04:19, Gateway send SMS reports to authorized numbers automatically.

Everyday 19:23, Gateway will close the relay 1 automatically.(Relay close time is according

to the Close Time (Range 0~65535S))

GPRS Settings



Number Setting		
DI/DO/TH Setting	→ GPRS Communication Protocol	
Timer Setting	1. Modbus TCP protocol	→ IP/Server Address(e.g. 192,168.0.1)
Communication Setting		113.118.2.69
CPRS		Server Port(Range:0-65535) 5555
Ethernet	-> Hearbeat Interval Time(Kange.0-00030586) 35	Access Point Name(Max.40) 1111111122222
📕 RS485/232	Reconnection Interval Time(0-65535s,Default.60sec)	→ GPRS User Name(Max.40) aaaaaaaaaaaahh
Related SMS		→ Password(Max.40) 1245783654588

Tips: Click the left "Communication Setting button" to set the parameter, below is similar.

This Page is for setup the GPRS online parameters, GPRS Transport data protocol and Server information. Only when you have Server or need to use GPRS to transmit data then need to setup these parameters. The GPRS Protocol only supports Modbus TCP Protocol now. includes both of Modbus TCP and Modbus RTU over TCP.

GPRS Communication Protocol: Stands for setup the Communication type.(0.Disable /1.Modbus TCP Protocol /

2.Modbus RTU Over TCP/ 3.Definition Protocol, invalid now)

GPRS Protocol: Stands for the GPRS transmission using TCP or UDP protocol; Default TCP.

Heartbeat Content: GPRS heartbeat content to avoid GPRS failure.(Max 20 digits, default ACK).

Heartbeat Interval Time: GPRS keep online heartbeat interval time.(0~65535s), default 60 seconds, recommend setting to 30~60s.

Reconnection Interval Time: Stands for setup the GPRS reconnection interval time after the GPRS connection

failure, till reconnect. (0~65535s), default 60 seconds.

Upload Data Interval Time: Reserved, not used in current.

IP and Server address: Server IP address or server domain name.

Server Port: Stands for Server Virtual Port. (Max 40 digits).

Access Point Name: GPRS Access Point Name, provided by local GSM/3G/4g Operator(Max 40 digits). GPRS User Name: GPRS User Name, provided by local GSM/3G /4G Operator (Max 40 digits). GPRS Password: GPRS Password, provided by local GSM/3G Operator (Max 40 digits).

Ethernet Settings

Ethornat Communication Protocol	
1 Modbug TCP protogol	
1. moubus ici protocor	
Local IP	
192.168.1.200	
→Port(Range:0~65535)	
1000	
→ Upload Data Interval Time(Range:0	-65535sec,Only for Definition Protoc
60	

This page is for setup the Ethernet parameters. Over the RJ45 port, the Modbus gateway can be used as slave to communication with the Modbus TCP server, only support one TCP client to visit.

Ethernet Communication Protocol: Stands for setup the Communication type.(0.Disable / 1.Modbus TCP Protocol / 2.Transparent transmission, invalid now / 3.Definition Protocol, invalid now).

Local IP and Port: Port range: 0~65535, only supports Ethernet LAN in current.

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Upload Data Interval Time: Reserved, not used in current.

RS485/232 Serial Port Settings

Notice:

.....

Please don't change and Modify the RS485/232 Serial Port settings, these parameters were defaults correctly already, once you modify or change them, the Cellular IoT Gateway will cannot communicate correctly with the power meters.

I	→ Communication Protocol	
I	0.Disable	
I	→ Baud Rate	→ Scan Rate(Range:0-65535ms)
I	115200 🔹	200
I	→ Data Bit	→ Time out(Range:0-65535sec)
I	9 -	5
I	→ Parity Bit	→ Upload Data Interval Time(Range:0-65535sec,Only for Definition Protocol)
I	Even 👻	
I	\rightarrow Stop Bit	→Timespan of ensure master-slave communication failure(Range:0-65535sec)
I	1 -	
I		
I		

This Page is for setup the serial port parameters, over the RS485/232, the setting need to match with slave device.

Related SMS

Tips: The "Alarm Send SMS" is only for Slave, not for Master parameter alarm. Timer Send SMS means: Everyday and Periodically timer auto report. Click the left "Alarm, Timer and Alarm(1) button" to set the parameter, below is similar.

Alarm Send SMS(1)	Timer Send Sl
	Unselected -
Din1	
Din2	
Din3	
Din4	
Do1	
Do2	
Temperature	
Huminity	
Arm	
Signal of Cellular ne	twork
Power Supply	
Device ID	
Device Description	
Timestamp	

This Page used for: when slave alarm, the alarm SMS content include what status for authorize users. Users can choose the status for alarm SMS content from the list.





Timer means: device timer to send working status report to users everyday via SMS.

Tag 1~64:Current status of Boolean Slave; (Not Used in S253)Int1~128:Current status of 16Bit Slave; (Not Used in S253)Dint1~64:Current status of 32Bit Slave; (Specialized used in S253)Double1~64:Current status of 64Bit Slave; (Not Used in S253)



This Page used for: when slave alarm, the alarm SMS content include where status for authorize users. Users can choose the status for alarm SMS content from below.

Tag 1~64: Current status of Boolean Slave; (Not Used)
Int1~128: Current status of 16Bit Slave; (Not Used)
Dint1~64: Current status of 32Bit Slave; (Specialized used in S255/6)
Double1~64: Current status of 64Bit Slave; (Not Used)

Add Modbus Slave(Power Meter&DAM Settings)

This part was preset already, after click Reading Setting then will display the channel and default values.

Working Principle:

The Meter Registers were assigned to the Cellular IoT Gateway already according to the below correspondence table. While powered on both of the Meter and Gateway, the Gateway will poll the meters by Modbus RTU

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Protocol over the RS485 serial port, the Gateway performs as Modbus Master, and the Meter performs as the Modbus Slave. The Gateway will save the meters value in Gateway's internal memory, the Server (Monitoring Center) can read these registers to get the meter's value, and these values haven't been converted. At the meanwhile, the Gateway will convert the read out value to actually value according to the Conversion Relationship, but not save the converted actually value, just converting them and use to compare the actually value with the threshold high or low value, if exceed, will send SMS Alarm according to you settings.

So, please don't change the registers corresponding relationship with the Meters and DAM module in the Gateway, but you can change the settings, includes: Channel Name, Alarm SMS Content, Recovery SMS Content, Alarm Verify Time, Threshold High and Threshold Low value.

Basic Setting	🛃 Bas	ic Setting 💊 Add Modbus Slave	😥 Register List	📕 Histo	orical Record						
-	불 Dw	ord,Long,Float									
Number Setting	No	Channel Name	Slave iddress	Eurotion	Manning Address	Data Tuna	Alarm Warify Time	Threshold Hi	Threshold Io	High Alarm SWS Conten	t Low 4
	10	Total Active Energy	stave Address	*	*	Floot (PCD	niaim volity lime	0 000000	0.000000	High Mark Sk5 Concen	C 10w
DI/DO/TH Setting	11	Total Reportive Energy	*	*	*	Float_ABCD	0	0.000000	0.000000	Higher	
Dirborni Setting	12	Total Reactive Energy	*	*	*	Float ABCD	0	0.000000	0.000000	Higher	
	12	Phage Active Power	*	*	*	Float_ABCD	0	0.000000	0.000000	Uigher	
📸 Timer Setting	14	P Phone Active Power	*	*	*	Float_ADCD	0	0.000000	0.000000	Uigher	
inner setting	19	C Dhase Active Power	*	*		Float_ABCD	0	0.000000	0.000000	Higher Ul shaw	
	10	A Phone Re-option Demon	*	*	*	Float_ABCD	0	0.000000	0.000000	Higher	
Communication	10	D Dhase Re-active Fower	*	*		Float_ADCD	0	0.000000	0.000000	Higher	0
Setting	10	B Fhase Re-active Fower	*	*	*	Float_ABCD	0	0.000000	0.000000	Higher	
5	10	A Dhase Ke-active rower	*	*	*	Float_ADCD	0	0.000000	0.000000	nigher IIh	
Deleted SMS	19	D Dhase Apparent Fower	*	*		Float_ABCD	0	0.000000	0.000000	Higher	
W Related SWS	20	C Phase Apparent Power	*	*	*	Float_ADCD	0	0.000000	0.000000	nigher	
	21	C Phase Apparent Fower	*			Float_ABCD	U	0.000000	0.000000	Higner	
A Add Madhus Claus		A rhase rower Factor	*		*	Float ABCD	0	0.000000	0.000000	nigner	
Add Modbus Slave	23	G Phase Power Factor	*	*	*	Float_ABCD	0	0.000000	0.000000	Higher	
		C Phase Fower Factor	*	*	*	Float_ABCD	0	0.000000	0.000000	Higher	
	20	A Phase Active Energy	*	*	*	Float_ABCD	U	0.000000	0.000000	Higher	
	26	B Phase Active Energy	*	*	*	Float_ABCD	U	0.000000	0.000000	Higher	
	21	C Phase Active Energy	*	*	*	Float_ABCD	U	0.000000	0.000000	Higher	
	28	A Phase Ke-active Energy	*	*	*	Float_ABCD	U	0.000000	0.000000	Higher	
	29	B Phase Ke-active Energy	*	*	*	Float_ABCD	U	0.000000	0.000000	Higher	
	30	C Phase Ke-active Energy	*	*	*	Float_ABCD	U	0.000000	0.000000	Higher	
A Dito(20hit)	31	Phase Loss Alarm	*	*	*	Float_ABCD	U	0.000000	0.000000	Higher	
4 Byte(320it)	32	AIN1	*	*	*	Float_ABCD	0	0.000000	0.000000	Higher	
	33	AIN2	*	*	*	Float_ABCD	0	0.000000	0.000000	Higher	
	34	PT1	*	*	*	Float_ABCD	U	0.000000	0.000000	Higher	C
	35	PT2	*	*	*	Float_ABCD	0	0.000000	0.000000	Higher	
											•
Register List	监控设置	1								Modify Sla	ve
	→ Chann	el Name(Max.40) → Thr	eshold Lo 0.00000	0							_
	A Phase I	Power Eactor	- Hi 0 00000	0							Refresh
Historical Record	- Recove	erv SMS Content(Max 40)		<u> </u>							Circon
-	Recover	si ono oonton (india to)		. 41	arm Verify Time(0-655	35 660)					Modify
L. L	Lligh Al	arm SMC Content/Max 40)			ann veniy nine(0-055	33 360/					
i	→ High Alanni SMS Content(Max.40)										ead(4B)
	righer	arm PMP Content/Max 40)									
	→ LOW AI	ann Swo Content(Max.40)			noble receiver CMC	Default				🥥 s	ave(4B)
	OWEF				TRADIE DECOVERVISMS	THETAL					

Register List(Power meter current Value)

🗟 S278 Cellular IoT Modbus G	ateway(SMS、Mo	dbus RTU、Modbus	Tcp) Ver1.278.1.4	4335						
🔄 File(R) <u>§</u> Connect [Read Settings	(T) 길 Save Settin	gs(U) 📩 Skin	s(V) 🌍 Language	e(W) 🌋 Syste	m(X) 🙆 Abo	out(Y) 📙 Help(Z)		分 拖拽上	ŧ
Basic Setting	🛃 Basic Setting	g 🐟 Add Modbus	Slave 📦 Regi	ster List 📒 Histori	cal Record					
- Duoto Counig	Bo	olean	Wo	rd,Short			Dword,Long,Float		C	ouble
Number Setting	Register	Current Value 🔺	Register	Current Value 🔺	Register	Dword, Long	Float	-	Register	Current Value
Multiper Setting	24		64		192			-	256	
	25		65		193				257	
💙 DI/DO/TH Setting	20		67		194				258	
	28		68		195				209	
W. Timer Catting	2.9		69		197				261	
i i mer setting	30		70		198				262	
	31		71		199				263	
Communication	32		72		200				264	
 Setting 	33		73		201				265	
	34		74		202				266	
Related SMS	35		75	U	203				267	
-	30		/6		204				268	
•	37		70		200				209	
Save 3 Add Modbus Slave	30		79		200				270	
	40		80		208				272	
Degister List	41		81		209				273	
C Register List	42		82		210				274	
	43		83		211				275	
	44		84		212				276	
	45		85		213				277	
Current Value	40		86		214				278	
	47		87		210				279	
	48		66		210			_	280	

Tips: This page can check Slave current value online, used for testing. Choose the register type, right click and refresh to read the current value.

Historical Record



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	Basic Setting	9	y basic detting 🐐 Aud indubus share 🖸 Tregister List 🖉 Historican Cooled																
	Number Setting	Num	ber ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓																
¢	DI/DO/TH Setting	No	DateTime	Power	Arm/Disa	Cellular	Bat-vol	Din1	Din2	Din3	Din4	Do1	Do2	Temp	Hum	Туре	Tag1	Tag2	Tag
2	Timer Setting	1 2																	=
Þ	Communication Setting	3 4																	_
	Related SMS	5 6																	
	Add Modbus Slave	7 8																	-
	Register List	9 10																	—
	Historical Record	11																	—
	- Instantan Necolu	13																	\pm
	Historical Record	14 15																	<u> </u>
		16 17																	\pm

This page is for manage and read out the historical record from the gateway, and can save as CS format for other purpose usage. For historical record, the Data Logger total can save 1800 records.

Read: Set the quantity which need to read, max 1800 historical records.

Refresh: Refresh the records to read.

Clear Data: Clear device records online.

Filter: After setting the time period, click the button to search historical records in this time.

	Time Setting	
Start Time	2017-11-21 💌	11:41:08 ÷
Stop Time	2017-11-21 💌	11:41:08 ÷
	G Filter	

Choose the time to search the historical records.

Export CSV: Export current display historical records to CSV format file. Import CSV: Import the historical record file to current page.

7. SMS Command List and Communication Protocol

Pls refer to SMS Command List is the same as S278, please refer to S276/8 Cellular IoT Modbus Gateway SMS Command List V1.0 except the Boolean and 16Bit type parts.

8. Register Table List and Communication Protocol

The S255/6 supports Modbus TCP protocol over cellular network, and supports Modbus TCP protocol over Ethernet Port.

The registers of the S255/256 please refer to read the Register Tables. Includes S278 Cellular IoT Gateway Register, and the Mapped Register List of the meters.

S278 Cellular IoT Gateway Register Table										
Definition	Register(Decimal)	Data Type	Function Code	Description						
Temperature	40000	signed int AB	3 / 4	Real=Register/10						
Humidity	40001	signed int AB	3 / 4	Real=Register/10						
DIN 1	40002 bit0	cianad int AD	3 / 4							
DIN 2	40002 bit1	signed int AB	3 / 4	0=Open,1=Close						



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DIN 3	40002 bit2		3 / 4	
DIN 4	40002 bit3		3 / 4	
Power Supply Status	40002 bit4		3 / 4	0=ON, 1= OFF
Arm/Disarmed Status	40002 bit5		3 / 4	0=Arm, 1=Disarmed
Relay 1	40003 bit0	signed int AD	3 / 4	0-Open 1-Class
Relay 2	40003 bit1	Signed Int Ab	3 / 4	0=Open,1=Close
Close/Open Relay	40003	signed int AB	6	

S255 Mapped Register List of the meters

SN	Channel Name (SMS Content)	Register(Decimal)	Data Type	Function Code	Description
1	Channel 1 DC Volt	41128		4	
	Channel I DC Volt	41129		4	
2	Channel 1 DC Current	41130		Δ	
		41131		4	
3	Channel 1 Active Power	41132		Λ	
	Channel I Active Power	41133		4	
4	Channel 2 DC Volt	41134		Δ	
		41135		4	
5	Channel 2 DC Current	41136	Float	Δ	
		41137	ABCD	4	Real Value
6	Channel 2 Active Dower	41138	32Bit	Λ	Real value
	Channel 2 Active Power	41139	Dint	4	
7	Channel 1 Total Active Energy	41140		2	
		41141		5	
8	Channel 1 Re active Energy	41142		2	
	Channel I Re-active Energy	41143		5	
9	Channel 2 Total Active Energy	41144		2	
	Channel 2 Total Active Energy	41145		3	
10	Channel 2 Total De active France	41146		2	
	Channel 2 Total Re-active Energy	41147		3	

S256 Mapped Register List of the meters

SN	Channel Name (SMS Content)	Register(Decimal)	Data Type	Function Code	Description
1	Channel 1 DC Volt	41128		Λ	
		41129		4	
2	Channel 1 DC Current	41130		4	Real Value
		41131	Flact	4	
3	Channel 1 Active Dewer	41132	Float	4	
	Channel 1 Active Power	41133			
4	Channel 2 DC Volt	41134	32BIt	4	
		41135	Dint	4	
5	Channel 2 DC Current	41136		4	
	Channel 2 DC Current	41137		4	
6	Channel 2 Active Power	41138		4	



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		41139		
7	Channel 2 DC Valt	41140	4	
	Channel 3 DC Volt	41141	4	
8	Channel 2 DC Current	41142	4	
	Channel 3 DC Current	41143	4	
9		41144		
	Channel 3 Active Power	41145	4	
10		41146	4	
	Channel 4 DC voit	41147	4	
11	Channel 4 DC Current	41148	4	
	Channel 4 DC Current	41149	4	
12	Channel 4 Antine Device	41150	4	
	Channel 4 Active Power	41151	4	
13	Channel 5 DC Valt	41152	4	
	Channel 5 DC Volt	41153	4	
14		41154	4	
	Channel 5 DC Current	41155	4	
15	Channel F. Active Dever	41156	4	
	Channel 5 Active Power	41157	4	
16	Channel 1 Total Active Energy	41158	2	
	Channel 1 Iotal Active Energy	41159	3	
17	Channel 1 Do activo Energy	41160	3	
	Channel I Re-active Energy	41161	5	
18	Channel 2 Tatal Active Energy	41162	3	
		41163	5	
19	Channel 2 Total Bo active Energy	41164	2	
	Channel 2 Total Re-active Energy	41165	5	
20	Channel 2 Total Active Energy	41166	2	
	Channel 5 Iotal Active Energy	41167	C	
21	Channel 2 Total Re active Energy	41168	2	
		41169	5	
22	Channel 4 Total Active Energy	41170	2	
		41171	3	
23	Channel 4 Total Polactivo Enormy	41172	2	
		41173	ى 	
24	Channel 5 Total Active Energy	41174	2	
		41175	3	
25	Channel 5 Total Polactivo Enormy	41176	2	
	Channel 5 Iotal Re-active Energy	41177	3	

9. Upgrade Firmware

The gateway supports upgrade firmware via USB port directly. If we upgraded the firmware functions of the gateway, we will inform you to upgrade the firmware if you required. If there any new requirements of the present functions caused it should update the firmware, the user can upgrade them directly by USB port. If you required upgrade, please contact us to modify the firmware according to you requirements, and we will

provide the upgraded firmware to you to upgrade them.

10.Warranty

- 1) This system is warranted to be free of defects in material and workmanship for one year.
- 2) This warranty does not extend to any defect, malfunction or failure caused by abuse or misuse by the Operating Instructions. In no event shall the manufacturer be liable for any alarm system altered by purchasers

Appendix 1: Modbus TCP Protocol Communication Examples

1)Register Assignment Table

The register address, Modbus function code, data type, usage, and precautions for this module are described in the following table. It used for communication with Modbus TCP Master.

1). The gateway (Modbus Master) register address, used for saving slave (Meter) data, can't overlap.

The gateway (Modbus Master) register address range (Decimal):

01-COIL STATUS: 00001-00064

02-INPUT STATUS: 00001-00064

03-HOLD REGISTER: 40000-40003 and 41000-41511

04-INPUT REGISTER: 40000-40003 and 41000-41511

Tips: 40000-40003 register address reserved only module itself using.

The relative between mapping serial no. and register address				
Data Type	Mapping(Decimal)	Register Address(Decimal)		
Boolean	000-063	00001-00064		
16 Bit(Word,Short)	064-191	41000-41127		
32 Bit (Dword,Long,Float)	192-255	41128-41255		
64 Bit (Double)	256-319	41256-41511		

2).Mapping Register Address

Tips: One Boolean mapping one register address; One 16 Bit mapping one register address; One 32 Bit mapping two register address;

One 64 Bit mapping four register address.

For this protocol, the S276,S278 ID range is 1~247;

When the device acquisition data from slave, then mapping to S278 master's register address, the data type will not change by S278, but the data level will be as below:

Signed AB(2Byte)

Unsigned AB (2Byte)

Long ABCD (4Byte)



Unsigned ABCD (4Byte) Float ABCD (4Byte)

Gateway Parameter(Support Function Code 3 and 4)			
Register Address	Definition	Data Type	Description
9C40H	Temperature	Signed AB	Current Value=True Value*10 ; Low Level Data Beginning
9C41H	Humidity	Signed AB	Current Value=True Value*10 ; Low Level Data Beginning
9C42H	DI, Arm/Disarm, External power status	Signed AB	Bit(0-3): DI(1-4),0=Open,1=Short ; Bit4 : 0= External Power,1=Power Failure ; Bit5 : 1=Arm, 0=Disarm
9043H	Relay Output	Signed AB	Bit0:Ralay 1 Status,Bit1:Relay 2 Status, 0=Open, 1=Close
Function Code 6 (Relay Output Parameter)			
9C43H	Switch Relay 1 and 2	Signed AB	Bit0:Relay 1, Bit1:Relay 2, Write 1=Close, Write 0=Open

Double ABCDEFGH (8Byte)

The A,C,E,G stands for high data level, the B,D,F,H stands for low data level.

2)Gateway IO Register Assignment Table

Example 1: Read gateway parameter, if the device ID address=1 Modbus TCP : Hexadecimal Function code : 03H or 04H Master downstream : 00 00 00 00 00 00 06 01 03 9C 40 00 04 Slave answer: 00 00 00 00 00 0B 01 03 06 01 26 02 4D 00 00 00 01

Master Send Data Format:

Content	Bytes	Data	Description
Counter Command	1	00 0011 Stort	When one data package cont, the countervalue add 1
Counter Command	1	00 00H Start	when one data package sent, the counter value add 1
Fix Character	1	00H	Fix format and characters
Fix Character	1	00H	Fix format and characters
Content Length	1	00.0011	
Content Length	1	00 06H	According to bening content bytes
Device ID	1	01H	01 device, Range:1-247, according to setting address
Function Code	1	03 or 04H	Read Input or Holding Register
Origin Register Address	2	9C 40H	Range:9C40H-9C43(40000-40003),the address refer to above. Data sent sequence: high byte in font, eg:



			0010,then sequence: 00 10.
Read Register Qty	2	00 04H	Range: 0000H-0004H,read gateway parameter, Data sent sequence: high byte in font, eg:0008, then sequence:00 08.

Receiver Return Data Format:

Content	Bytes	Data	Description
Counter	1		
Command		00 00H Start	According to data that gateway sent
Counter Command	1		According to data that gateway sent
Fix Character	1	00H	Fix format and characters
Fix Character	1	00H	Fix format and characters
Content Length	1		
Content Length	1		According to bening content bytes change
Device ID	1	01H	01 device, according to data that gateway sent
Function Code	1	03 or 04	Read Input or Holding Register
Return Byte length	1	06Н	Data:2N, N stands for register qty.
Returning Data	6	0126H024DH 0000H0001H	From left to right, two bytes stands for a master register parameter, refer to above, Data sent sequence: low byte in font, eg: 00 01H, then sequence: 01 00H.Details as below: 0126H:294,Temperature: 29.4C 024DH:589, Humidity: 58.9%RH 0000H: Power failure,Disarm,DIN1-4 Open 0001H: Relay 1 close. Relay 2 Open

Example 2: Relay output control, if the device ID address=1 Modbus TCP : Hexadecimal Function code : 06H Master downstream : 00 00 00 00 00 06 05 06 9C 43 00 01 Slave answer : 00 00 00 00 00 0B 05 06 9C 43 00 01

Master Send Data Format:

Content	Bytes	Data	Description
Counter Command	1	00 00H Start	When one data package sent, the counter value add 1
Counter Command	1		
Fix Character	1	00H	Fix format and characters
Fix Character	1	00H	Fix format and characters
Content Length	1	00 06H	According to behind content bytes



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Content Length	1		
Device ID	1	01H	01 device, Range:1-247, according to setting address
Function Code	1	06H	Write single register
Register Address	2	9C 43H	Range: 9C43, the address refer to above. Data sent sequence: high byte in font, eg: 0001, then sequence: 00 01.
Register Value	2	00 01H	Range: 0000H-0003H, 0=All Relays Open,0001=Relay 1 Close,0002=Relay 2 Close,0003=All Relays Close. Data sent sequence: high byte in font, eg: 0001, then sequence: 00 01.

Receiver Return Data Format:

Content	Bytes	Data	Description
Counter	1		
Command	Ţ		According to data that gatoway cont
Counter	1		According to data that gateway sent
Command	Ţ		
Fix Character	1	00H	Fix format and characters
Fix Character	1	00H	Fix format and characters
Content Length	1		According to behind content bytes change
Content Length	1		
Device ID	1	01H	01 device, according to data that gateway sent
Function Code	1	06H	Write single register
Register	1	9C43H	Address: 9C/13H according to data that gateway sent
Address	Т.		Address.setsil, decording to data that gateway sent
Register Value	8	0001H	According to data that gateway sent

The End! Any questions please help to contact us feel free. Http://www.GPRS-M2M.com