SM40P-5000 KG (full Netcom 4G) type
Digital oil extraction unit

V 1.00

Bengbu Sun and Moon

Instrument Research Institute

Co., LTD

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catalogue

SM40P-5000 KG (full Netcom 4G) digital pumping wellhead controller (V1.00) Chinese operation manual 25 / 26131

1. Precautions

SM40P-5000 KG (full netcom 4G) digital pumping unit wellhead controller RTU (hereinafter referred to as controller) is an industrial field measurement and control equipment with strong electric power supply, without contact operation in normal operation.

Please read this Chinese Operation Manual carefully before installation, commissioning or maintenance operation.

Strong electric power supply equipment, before contact operation, please confirm that the equipment is reliable grounding!!

Special equipment, please be operated under the guidance of trained professionals.

This manual is only for reference for installation and maintenance, and does not make any form of warranty.

Sun Moon Technology reserves the right to modify the manual without further notice.

2. Structure

graph 1

2.1 Mechanical structure

Built rail type fixed structure, protection grade IP65. Ensure that the controller is used for a long time in moisture and dust.
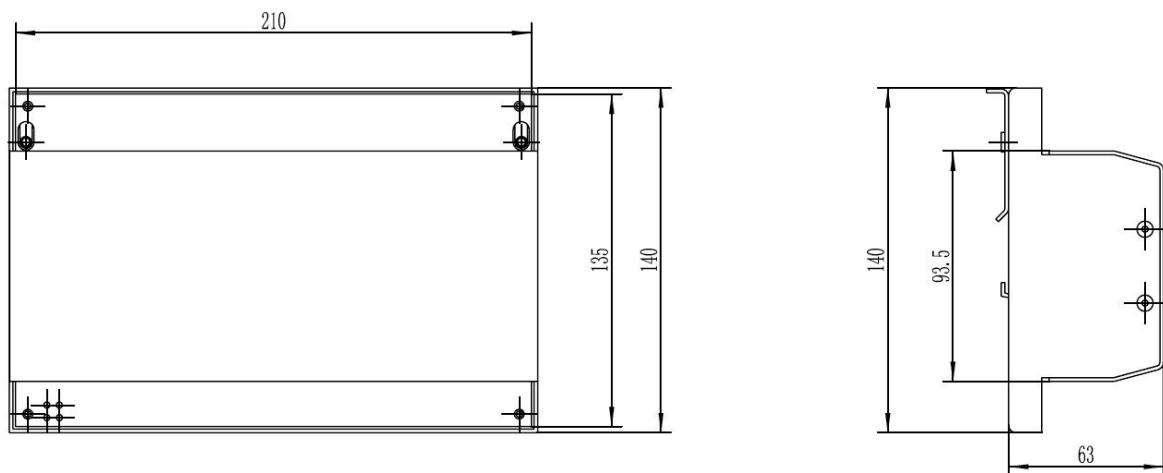
graph 2

2.2 Internal layout

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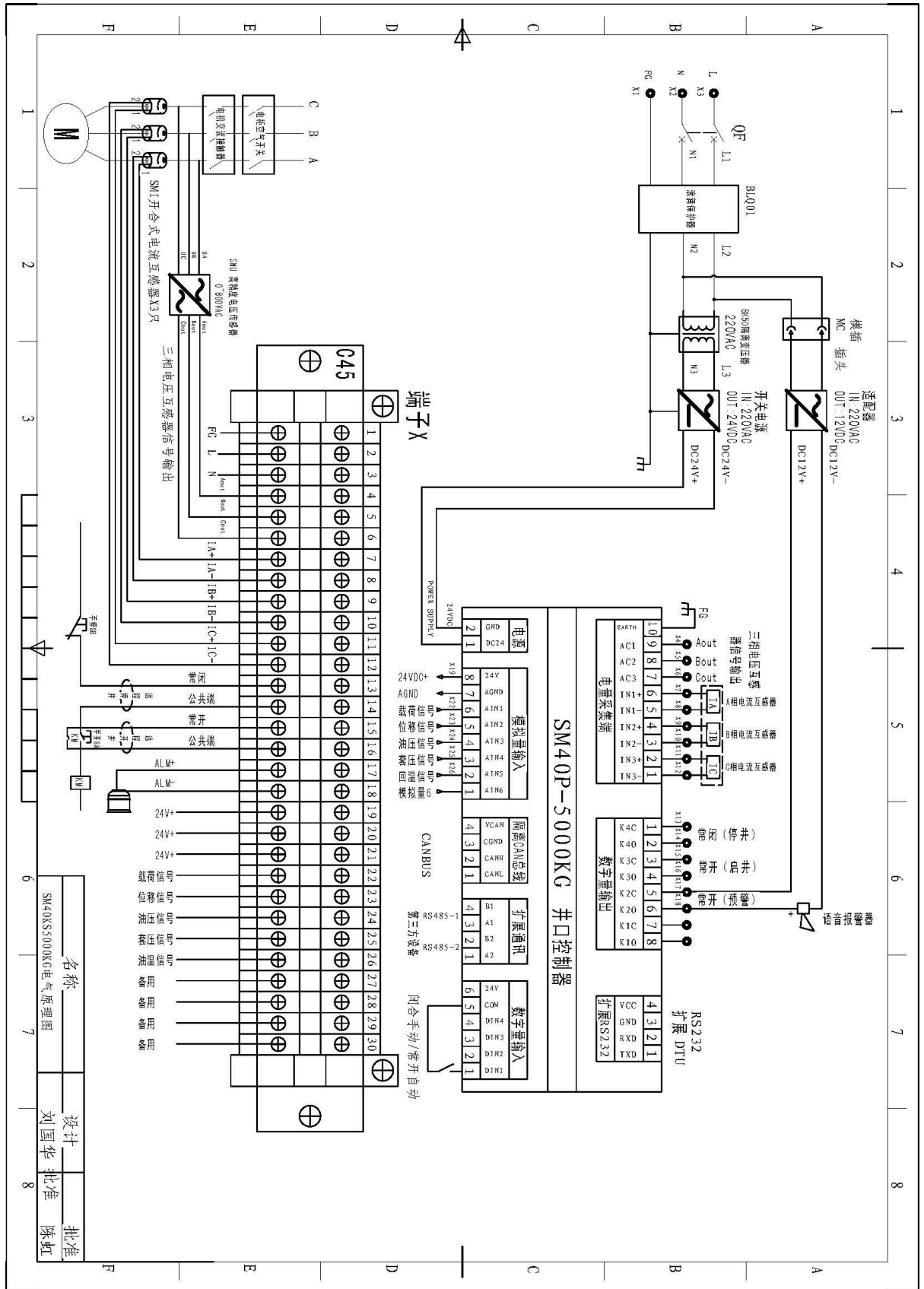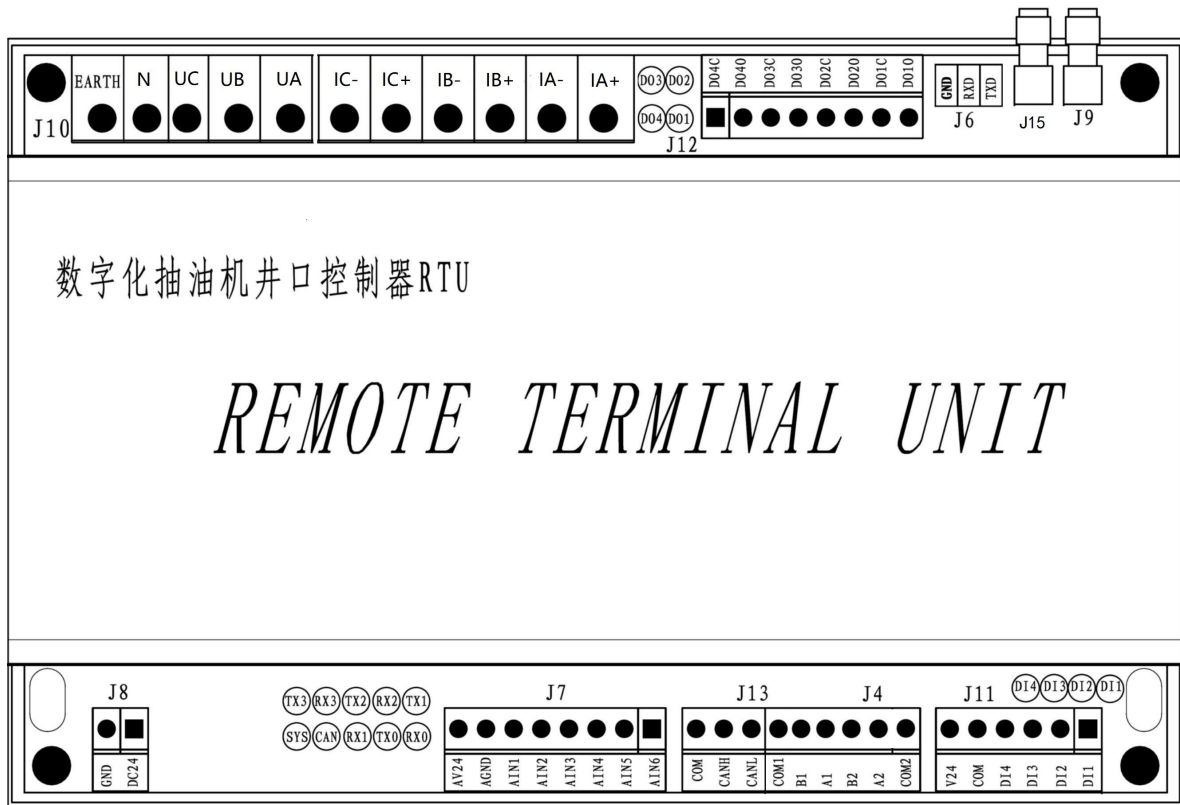
2.2.1. Function of circuit board, access conversion, EMC filtering, surge protection, lightning protection, manual / automatic switching; realize functions of passive light isolation reception and switching, relay switch output drive, backup battery power management and other functions;

2.2.2. Realize 6-way 0-20 mA analog volume acquisition, transmitter power supply, three-phase power collection (three-phase current, voltage direct access), and expanded bus data communication functions;

2.2.3. Zigbee wireless data transmission module to realize wireless data communication between wireless instrument and controller;

2.2.4. Full netcom 4G wireless communication module to realize remote data transmission between controller and background control room;

2.3 The definition of the SM 40 P-5000 KG interface

2.3.1 Power supply interface

number	Terminal mark	Terminal definition	qualification	remarks

1	GND	Power supply ground	Power supply: 18~36VDC (recommended 24VDC);	
2	DC24	DC24V		

2.3.2 Three-phase voltage and current signal source interface (J10)

number	name	qualification	class	remarks
1	Earth		protective ground	Can be reliably grounded through this terminal. The grounding line is strictly prohibited to share the grounding row with the motor to prevent common interference. When there is no independent reliable grounding row on the site, please hang up! At this point, reliable grounding must be achieved through the module housing installation fixings.
2	AC1		Three-phase voltage output access	High voltage requires access to the voltage transformer
3	AC2			
4	AC3			
5	N			
5	IIN1+	Full range: 100Aac RMS; Precision: level 0.5 Special range requirements, proposed when ordering.	A phase current	Current transformer: Model SMI-100; Ensure the relevance of the current detection points.
6	IIN1-			
7	IIN2+		B phase current	
8	IIN2-			
9	IIN3+		C phase current	
10	IIN3-			

2.3.3 Input interface

number	Terminal mark	Terminal definition	qualification	remarks
1	V24	Standby external power supply	12.5VDC/200mA	
2	COM	common port		

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3	DI4	Manual / automatic feedback	➢ Single-channel conduction current IF <10 mA; ➢ Passive photoelectric isolating switch quantity; ➢ Reverse voltage protection: 1000 Vdc / 1 minute; Surge suppression by 600 watts	DI1 is manual with the common end (COM)
4	DI3	reserve		reserve
5	DI2	reserve		
6	DI1	reserve		

2.3.4 CAN BUS bus Interface

number	Terminal mark	Terminal definition	qualification	remarks
1	VCAN	The CAN bus equipment supply electricity	10VDC / 200 mA; controlled, software turned off	Serve as a CAN BUS device interface.
2	CGND			
3	CANH	CAN BUS	CAN Specification Version 2.0	
4	CANL			

2.3.5 RS485 interface

number	Terminal mark	Terminal definition	qualification	remarks
1	B1	RS485: B	EIA －RS485－A	(1) Extended data communication interface, with RS485 by default; (2) Other third-party data devices can be connected through standard Modbus or custom protocols. For example, it connects with third party flowmeter, pressure gauge, protocol conversion box, etc. **Spare port, requiring customization.**
2	A1	RS485: A		
3	B2	RS485: B	EIA －RS485－A	
4	A2	RS485: A		

2.3.6 RS232 interface

number	Terminal mark	Terminal definition	qualification	remarks
1	5V	VCC 5V	EIA-RS-232C	For program cable upgrade and local communication
2	GND	Signal ground		
3	RXD	receive		
4	TXD	transmit by radio		

2.3.7 Analog channel interface

number	Terminal mark	Terminal definition	qualification	remarks
1	AV24	DC 24V		Power supply 24v
2	AGND	common port		Public
3	AIN1	Load signal	Range: 0 ~ 20 mA; Sampling: 16bit Accuracy: 0.1%FS @ -40~ + 85℃	Other two-wire and three-wire transmitters; can access 0~5VDC signal, proposed when ordering **A calibration is required before use.**
4	AIN2	Displacement signal		
5	AIN3	Oil pressure signal		
6	AIN4	Set pressure signal		
7	AIN5	Oil temperature signal		
8	AIN6	analog quantity		reserve

2.3.8 Switch control interface

number	name	Line mark	qualification	class	remarks
1	Switch output (common port)	DO40	Independent insurance protection for the 250VAC/2.5A	Remote completion	Remove the hand stop button of the control box of the pumping unit SB one of the contacts and connect the remote well stop switch output in series.
2	Switch output (Often closed end)	DO4C			
3	Switch output (common port)	DO30	Independent insurance protection for the 250VAC/2.5A	Remote well opening	Parallel the remote well opening switch output with the pump dragging control box open button SA.
4	Switch output (Often started)	DO3C			
5	Switch quantity output (common end)	DO20			Voice alarm

6	Switch output (Often started)	DO2C			
7	Switch output (common port)	DO1O			
8	Switch output (Often started)	DO1C			reserve

2.4 LED indicator light definition

(TX3)(RX3)(TX2)(RX2)(TX1)
(SYS)(CAN)(RX1)(TX0)(RX0)

SYS: Chang Liang means into BootLoader, a second flashing means that the program is running normally;

CAN: zigbee in the net indicator light, in the net when the light;

RX 1: power chip error indication, error when bright;

TX 1: Oil well hand automatic status indicator lamp

RX 0: the wireless port receives the data and is bright when receiving;

TX 0: the wireless port sends data, bright when sending;

RX 2: the main communication port receives data, bright when receiving;

TX 2: the main communication port sends the data, and it is bright when receiving it;

RX 3:4G communication in the network indicator light, the communication is often bright;

TX 3: configuration mode indication, enter the configuration mode always bright;

(DO3)(DO2)
(DO4)(DO1)
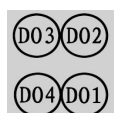
DO 1: J12 interface DO 1 C when closed (standby)

DO 2: J12 interface DO 2 C open contact closed (voice alarm)

DO 3: J12 interface DO 3 C normally open contact closed (remote well)

DO 4: J12 interface DO 4 C is bright when disconnected (remote shutdown)

3. Functional description

order number	project	content
1	Oil well type	Wireless remote leaflet well monitoring;
2	Single well graphics acquisition	Work diagram, current diagram, power diagram;

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3	Capture of power map parameters	Maximum and minimum load, stroke and stroke times.
4	Work map area parameter acquisition	Each work diagram can calculate and show the corresponding work diagram area, which is convenient for the production unit to find the yield changes in time;
5	Three-phase electrical reference collection	Motor three-phase current, voltage, active power, power factor, etc
6	Well head parameter collection	Oil pressure (or sink pressure), sleeve pressure (alternative), wellhead temperature (alternative) and other parameters;
7	Alarm parameter collection	Well opening alarm, well shutdown alarm and power failure alarm (optional)
8	Frequency conversion parameter collection	Output frequency, output current, output voltage, bus voltage / power.
9	Well opening and well shutdown control	Remote well opening and remote well shutdown. Controller automatic pumping control
10	Voice alarm	Before remote well opening and remote well shutdown, the site has a complete voice sound alarm.
11	Chong times balance adjustment	Upper computer: remote manual input stroke adjustment, balance (automatic status). Controller: SM40P-5000 KG automatically determine and adjust the stroke and balance (automatic status). Frequency converter: frequency converter adjustment stroke time (manual state).
12	Status lock	Charge, balance not adjusted (locking status), manual / automatic status locking
13	Local communications	Zigbee Interface, the local wireless digital communication network
14	Extended communication	RS485 communication between SM40P-5000 KG and third-party devices (alternative)
15	telecommunication	Full netcom 4G communication, data remote background control room

4. Installation

SM40P-5000 KG controller is generally installed in the digital pumping unit control cabinet of the upper layer of the power distribution cabinet of the oil well towing device, and fixed with the guide rail.

4.1. Reliable grounding through the housing or the Earth terminal. The grounding

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line is strictly prohibited to share the grounding row with the motor to prevent common interference.

4.2. Please bounce the battery switch for a long time to disconnect the backup battery. In normal use, please press the battery switch.

4.3. Turn the upper cover screw of the main control module tightly and keep the cabinet door closed to ensure the sealing.

5. The wiring

 Refer to 2.2. internal layout diagram for wiring.
Special reminder: the grounding wire must be reliably grounded!

6. Test software:

The controller real-time data communication and power map transmission follow the modbus standard protocol, and the upstream data is the standard A11 protocol. The controller has local serial port communication and full network communication 4G communication functions.zigbee Wireless transmission needs to add packets and packets to modbus packets, so it needs special test software, here using our company software (A11 test software and comprehensive large wireless software)

A11协议测试软件1.0.XX 综合大无线(2.1.5XX兼A11驱动)

6.1 Integrated large wireless (oil field data acquisition system)

Use the A11 large wireless driver to monitor the device 4G communication online:
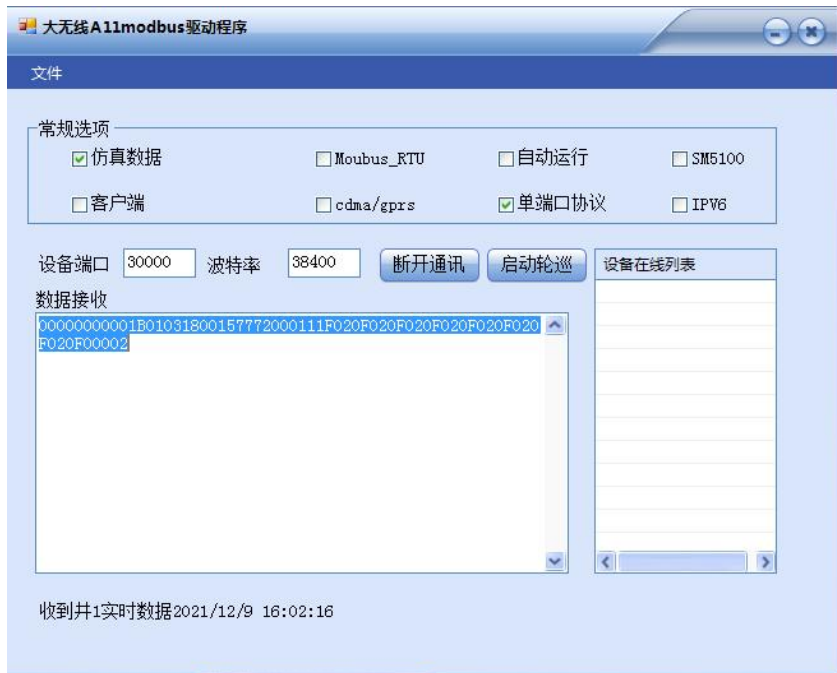
Big wireless software communication configuration

Configuration well station information: note network address: 13522222222
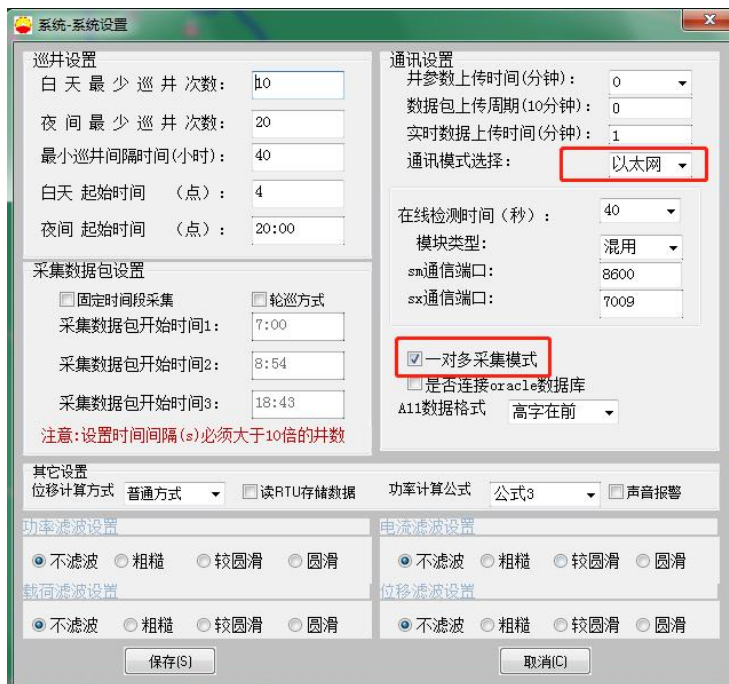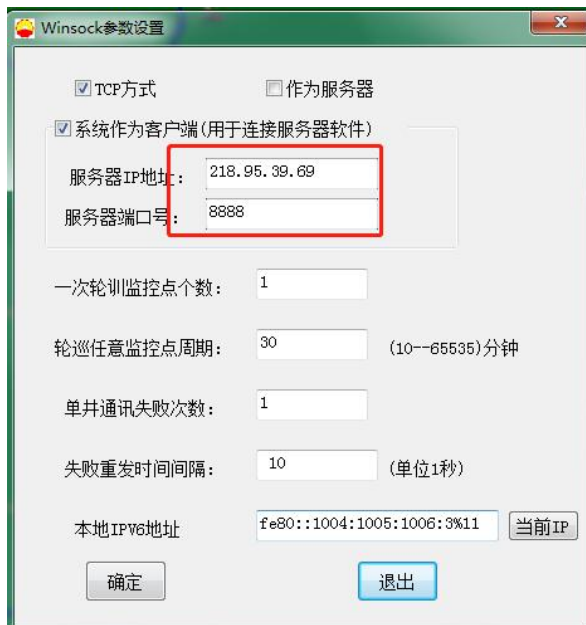

Ethernet mode communication, one-to-many mode

Configure the IP address and working mode of the server
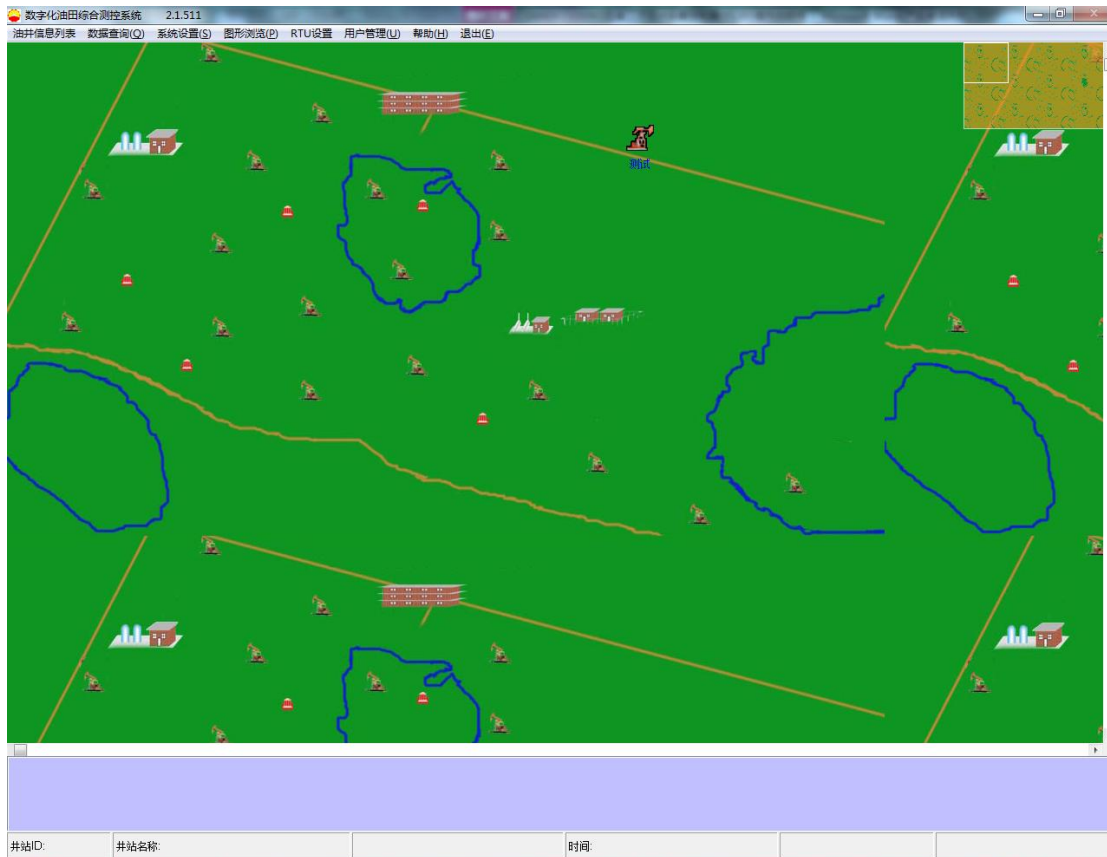
6.2. Function and parameter configuration:

6.2.1: Parameter configuration:

With wireless tooling, default channel (21.19.0), enter configuration mode: (A11 test software version 1.0.274 above)

6.2.1.1: Configuration of wireless communication parameters:

According to the actual use of the configuration instrument and controller communication parameters, the network parameters can be automatically generated directly using the well name. The load judgment step 0 / 4 represents the line voltage and phase voltage respectively.
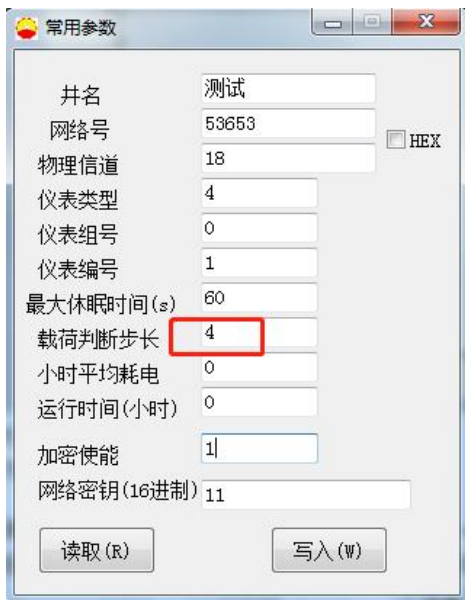
6.2.1.2: All netcom 4G communication parameter configuration:

APN name:

Mobile card: cmnet; Telecom card: ctnet

The physical address needs to be registered in the device:
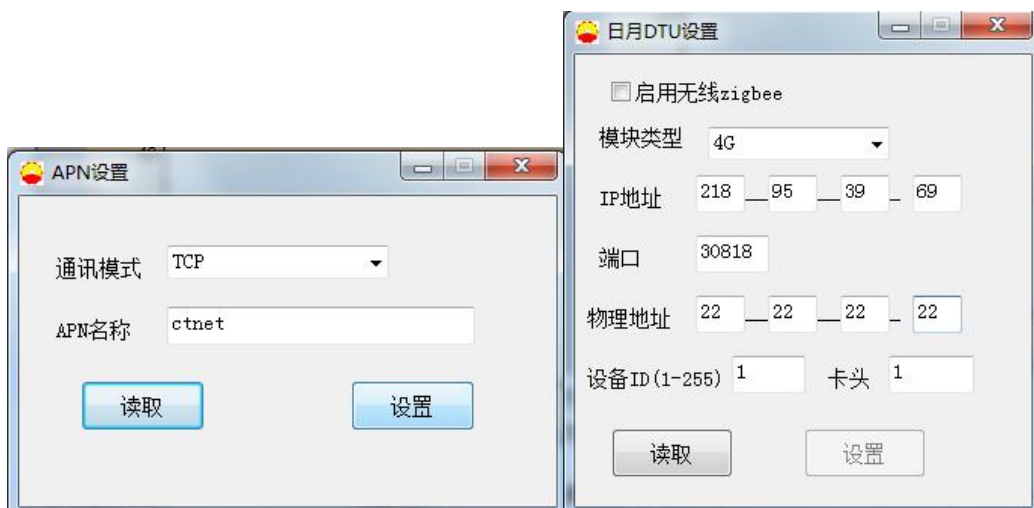
After the setup completes, the link status can be tested.(Until the chain building is successful)

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6.2.1.3 Simulation quantity 4-20ma channel calibration:

Simulated quantity calibration in the instrument calibration interface:

Calibration channel: the channel that needs to be calibrated, consistent with the access equipment and channel.(1: Load; 2: Displacement, no calibration is required.3: oil pressure; 4: sleeve pressure; 5: oil temperature; 6: standby.）

Channel sampling code: the real-time code value of the current simulated quantity

Range: the range used during the calibration.(The default channel 1 is 150 KN. Other channels are: 15.6mA(4－19.6mA), modified according to the actual simulation measurement range.）

6.2.1.4 Power quantity calibration

The actual use according to the instructions, access voltage and current.(Having been calibrated

during the factory test, the coefficient must not be modified on site)

电量标定

	当前值	目标值	
			读取　写入
			电流直流偏移
A相电流	100.03	100	电流增益校验
B相电流	99.80	100	电流交流偏移
C相电流	99.81	100	电压直流偏移
A相电压	801.63	800	电压增益校验
B相电压	800.50	800	电压交流偏移
C相电压	2.17		电流零采样
启动上传　停止上传　标定			电流满采样

设置电量系数

电流量程	200
A项电流系数	203
B项电流系数	204
C项电流系数	211
电压量程	2000
A项电压系数	76
B项电压系数	76
C项电压系数	75
读取(R)	设置(W)

6.3 Functional test and data verification:

6.3.1 Local serial port communication modbus engineering test

System attribute parameters, system time, software version, refresh time, device ID, baud rate, network communication parameters, etc.:

Wireless sensor can be configured in transmission mode (transmission command decimal: 1234)

Modbus Poll - [RTU系统属性数据]
File Edit Connection Setup Functions Display View Window Help
05 06 15 16 17 22 23 TC
Tx = 161: Err = 14: ID = 1: F = 03: SR = 1000ms

	Alias	00000	Alias	00020	Alias	00040	Alias	00060	Alias	00080	Alias	00100
0	应用井站类型	0x0001	系统预留	30		0		0		0	通讯参数	18
1	设备厂家	0x0003		0		0		0		0	网络号（PAN-ID）	53653
2	型号版本	0x0064		0	子网摘码	0		0		0	加密使能	1
3	口令	0x8888		0		0	主站端口号	0		0	密钥	0x11F0
4	系统时间	0x0011		0		0	主站通信方式	0		0		0x20F0
5	BCD码	0x0017	系统时间	0		0	下行通信接口	3		0		0x20F0
6		0x0013		0	网关	0	下行通信接收超时时间	5		0		0x20F0
7	系统日期	0x2021	RTU硬件信息1	0		0	下行通信失败重发次数	3	主站IPV6地址	0		0x20F0
8	BCD码	0x0012	RTU硬件信息2	0		0	IPV4配置模式设置	0		0		0x20F0
9		0x0007	透传模式设置	1234		0	IPV6配置模式	0		0		0x20F0
10	系统预留	0x0000	通信方式	3	MAC地址	0	IPV6前缀长度	0		0		0x20F0
11		0x0000	通信协议	1		0	本地IPV6地址	0		0	ZigBee协议类型	2
12		0x0000	终端通信地址	1		0		0		0	设置参数生效	0
13		0x0000	波特率	5		0		0		0	系统预留	0
14	版本	0x0000	数据位	1		0		0		0	复位RTU	0xAAAA
15	协议类型	0x0000	停止位	0		0	IPV6参数有效	0	油井组号	0		
16	软件版本	0x2111	奇偶校验	0	TCP/UDP标识	0		0	系统预留	0		
17	BCD码	0x3001	半/全双工	0	本地UDP端口号	0		0	物理信道	0		
18		0x0000	本地IP地址	0	本地TCP端口号	0		0		0		
19	模块在线检测时间	0x001E		0	主站IP地址	0	IPV6网关	0				

Instrument online information:

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Real-time data of wireless instrument, DI signal status, remote start and stop well control, sleep time setting of wireless instrument, electrical parameters, etc

Work map control parameters: set the work map acquisition mode, the number of acquisition points, and read the stroke, stroke and acquisition time after the acquisition. Manual acquisition instruction: 1: actual work diagram, 16: simulation work diagram.

6.3.2 Full netcom 4G communication (oilfield integrated measurement and control system) test

For the success of the chain construction, operate the oilfield integrated measurement and control system:

View the software version and hardware status of the device:

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Query the online status of the device:

Acquisition work map and electrical parameter data:
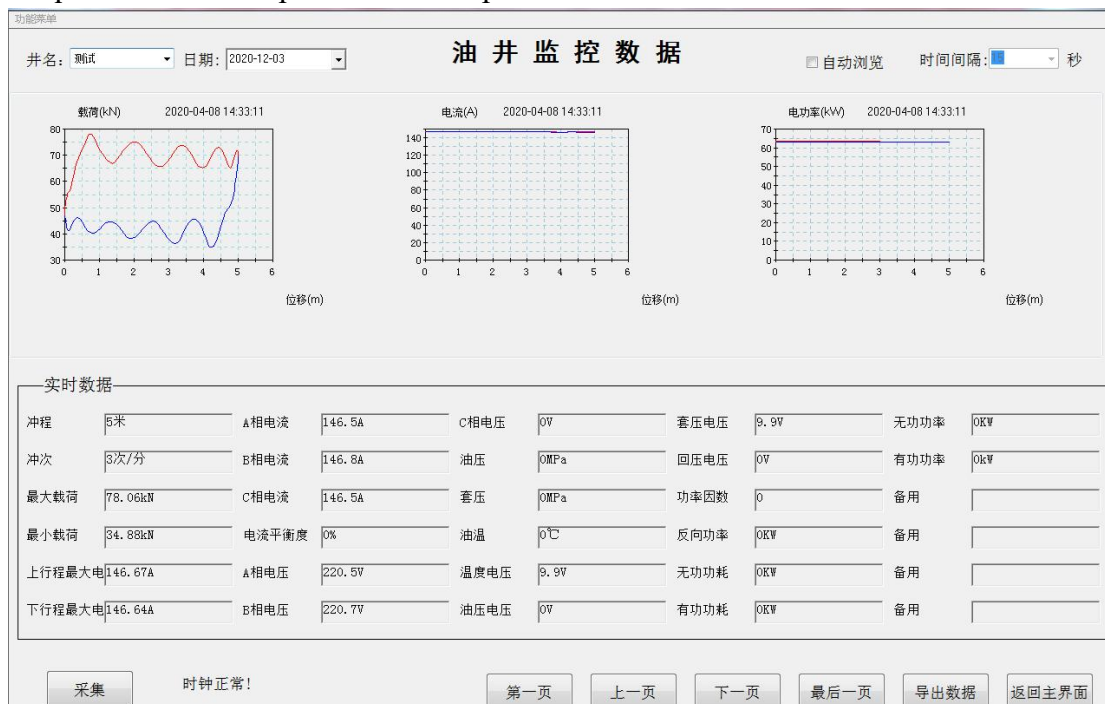
6.4 System upgrade

6.4.1 Local serial port (232) upgrade:

Use 232 port to upgrade, first configure the upgrade port, port rate, chip unit 2048, load the file, under the condition of normal system operation, use the test project to send the restart (0x: AAAA), turn on the communication and start the upgrade until the upgrade is completed.

6.4.2 Remote (full netcom 4G) upgrade:
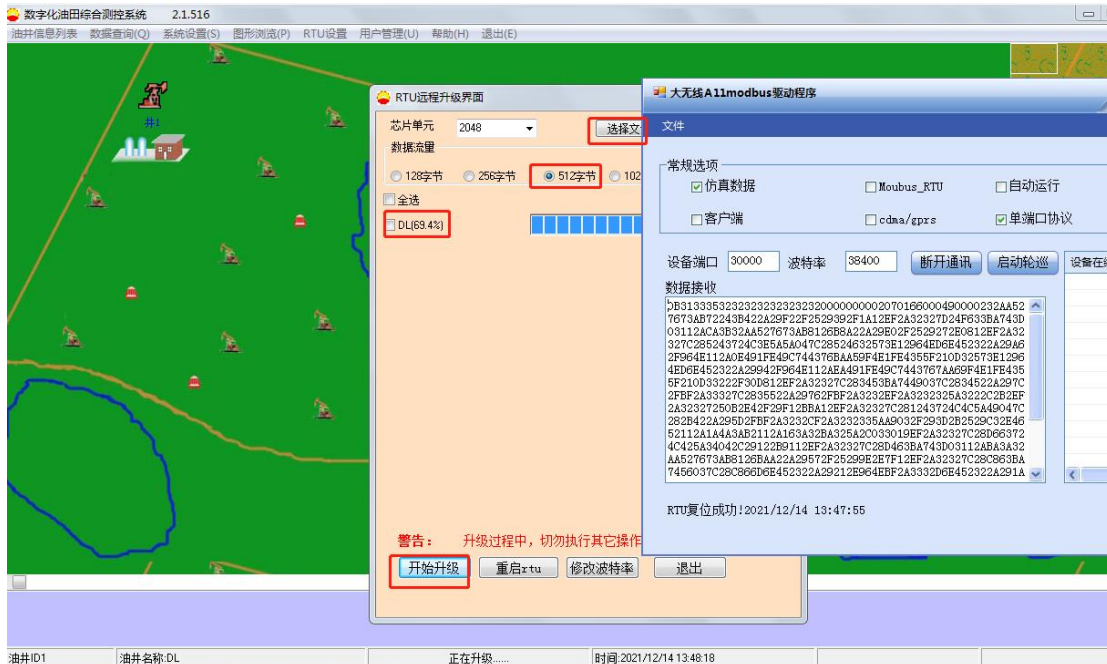
The RTU can remotely upgrade the equipment application with the integrated measurement and control system under normal 4G communication. Select the file, data

flow 512 bytes, select the well station, start to upgrade!

8. Maintain

8.1 Controller replacement

8.1.1. Stop the pumping unit and cut off the power supply of the controller to ensure personal safety.

8.1.2. Open the controller chassis, mark the peripheral leads (to facilitate the wiring after replacing the controller), and unplug the wiring terminals.

8.1.3. Remove the controller from the mounting substrate;

8.1.4. Install the new controller on the substrate and insert the terminals again;

8.1.5. Confirm the correct wiring, close the machine, record the physical address of the controller, and start the pumping unit.

8.1.6. Write the new controller network address into the sun and moon drive software and configure it well.

Note: If there are differences in the arrangement position and definition of wiring ports of different versions of hardware, please confirm and wiring strictly according to the drawings of the new controller.

8.2 Maintenance precautions

8.2.1. Please do safe and reliable grounding in strict accordance with the requirements of this manual, otherwise no free maintenance and warranty;

8.2.2. Ensure that the power supply voltage, ambient temperature and humidity must meet the relevant requirements of the product specification;

8.2.3. Severe vibration or shock will cause system damage, please avoid during use or installation;

8.2.4. There is no need to open the chassis for debugging. It is strictly prohibited to open the chassis without the permission of the company at will, otherwise, the company will not be responsible for any problems and cancel its warranty qualification.

8.2.5. Repair the damaged in correct use within the scope of warranty and replacement free;

8.2.6. The damages such as wrong line connection and artificial disassembly are not covered by the warranty, and the damaged components shall be charged according to the cost;

8.2.7. If the circuit board is scrapped, it cannot be repaired and shall not be

repaired.

8.2.8. Be sure to keep the certificate and manual (necessary materials for construction acceptance), and shall not be reissued.

. 9 Accessories

order number	name	ts	quantity	remarks
1.	The suction dish antenna	2400-2500 MHZ input impedance 50 Ohm, 2m feeder	Only 2	ZIGBEE：J9 ; Full Netcom 4G: J15.
2.	Line mark	Φ3	A set	Wiring identification
3	Screw, nut, elastic pad	M5×10	Two sets	Install the voice alarm device
4	Voice alarm	SMBJ01 12VDC/20W	A	Remote opening voice alarm

Appendix A: Well controller data storage table

A.1 The RTU system attribute data

order number	data item description	memory address	data type	Reading and writing type	unit	explain
A.1.1 Basic information of RTU, well station type and manufacturer information						
1	applied Well station type	40001	integer	read only		001-Well (production well),
2	Equipment manufacturer	40002	integer	read only		Assign vendor code according to A11 project team, Moon —— 0x0003
3	Model version	40003		read only		Implicit form: xx.xx
4	word of command	40004		read-write		Need to access the other password content after being written correctly to the register. It is currently tentatively set as 0x8888
5	System time	40005～40007	BCD a sign or object indicating number	read-write		hh:mm:ss
6	System date	40008～40010	BCD a sign or object indicating number	read-write		YYYY_MM_DD
7	System reserved	40011~40016				reserve
8	software release	40017～40019	BCD a sign or object indicating number	a slight pause in reading		Software version, year, month, day, version number (3 bytes), omit V, please add to the display
9	Module online detection time	40020	integer	read-write		5-600 min with default 30min
10	System reserved	40021～40027				
11	The RTU hardware information is in 1	40028	integer	read only		High bytes for ferroelectric presence information, from low bytes such as 0x03 for both ferroelectric 1 and ferroelectric 2; low bytes for FLASH chip presence 0x03 for FLASH presence
12	The RTU hardware information is in 2	40029	integer	read only		High byte represents the clock chip presence, 0 represents the clock presence, low byte standby
13	Transmission mode setting	40030	integer	read-write		Write 1234 into the transmission mode

order number	data item description	memory address	data type	Reading and writing type	unit	explain
A.1.2 RTU communication class parameters						
1	communication mode	40031	integer	read-write		0= digital radio station, 1 = GPRS / CDMA, 2=RS485,3= wireless bridge, 4=MicWill, 5=LTE. Should refer to the uplink data communication physical layer selection
2	communicating protocol	40032	integer	read-write		0=Modbus RTU，1= Modbus TCP/IP，2= DNP3.0。 Should refer to the uplink data communication data link layer selection
3	Terminal communication address	40033	integer	read-write		The default is 0,
4	Baud rate	40034	integer	read-write	bps	0=1200，1=2400，2=4800，3=9600,4=19200, 5=38400,6=57600,7= other.
5	data bit	40035	integer	read-write	bit	0=7 bits, and 1=8 bits.
6	stop bit	40036	integer	read-write	bit	0=1 bit, 1=2 bit.
7	even-odd check	40037	integer	read-write		0= no check, 1= even check, and 2= odd check.
8	Half / full duplex	40038	integer	read-write		0= half-duplex, and 1= full-duplex.
9	Local IP address	40039～40042	integer	read-write		TCP / IP address, Modbus TCP / IP
10	subnet mask	40043～40046	integer	read-write		TCP/IP address
11	gateway	40047～40050	integer	read-write		The TCP / IP address
12	MAC address	40051～40056		read only		TCP / IP address is the world unique MAC, RTU is factory set and cannot be changed
13	The TUP / UDP identification	40057	integer	read-write	bit	0：TCP，1：UDP；2：IPV6 TCP，3：IPV6 UDP
14	this locality UDP port number	40058	integer	read-write		port number
15	this locality TCP port number	40059	integer	read-write		port number
16	Main station IP address	40060～40063	integer	read-write		TCP/IP address
17	Main station port number	40064	integer	read-write		port number
18	Main station communication mode	40065	integer	read-write		Communication channel type; FF is invalid; 01: GPRS / CDMA; 02: Ethernet TCP Server; 03: Ethernet TCP Client; 04: Ethernet UDP Server; 05: Ethernet UDP Client.
19	Downlink communication interface	40066	integer	read-write		Communication channel type: FF is invalid; 01: Ethernet; 02: Wireless 433 (TTL); 03: ZigBee (TTL); 04: RS232A; 05: RS232B; 05: RS232B; 06RS485A; 07: RS485B.
20	Downlink communication receiving timeout time	40067	integer	read-write	s	The default is 5s
21	Number of downlink	40068	integer	read-write		The default is 3 times

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order number	data item description	memory address	data type	Reading and writing type	unit	explain
	communication failures					
22	The IPV 4 configuration mode settings	40069	integer	read-write		IPV 4 Configuration Mode: 1-static, 2-DHCP, 3-BOOTP
23	The IPV 6 configuration mode	40070	integer	read-write		1-automatic, and 2-static
24	The IPV 6 prefix length	40071	integer	read-write		
25	Local IPV 6 address	40072-40079	integer	read-write		
26	IPV6 Gateway	40080-40087	integer	read-write		
27	Main station IPV 6 address	40088-40095	integer	read-write		
28	The IPV 6 / IPV 6 parameters are valid	40096	integer	read-write		Writing 0 xbb will make the written IPV 6 / V4 parameter into effect
29	reserve	40097-40100				
30	channel	40101	integer	read-write		
31	PAN-ID	40102	integer	read-write		
32	Encryption enables	40103	integer	read-write		
33	cipher code	40104-40111	integer	read-write		16 byte keys
34	Zigbee Agreement type	40112	integer	read-write		0-2, with a default to 2
35	Set the parameters to take effect	40113	integer	read-write		1 is effective and 0 is invalid
36	Displacement sensor sleep time	40114	integer	read-write		10-1800 s
37	Reset upgrade	40115	integer	read-write		Write 0xaaaa reset and upgrade, valid time for 5 minutes

A.2 Collection and control of oil well production data

A.2.1 Acquisition and control data of oil well operation

order number	data item description	memory address	data type	Reading and writing type	unit	remarks
2.2.1.1 8 Road AI, 4 Road DI						
1	oil pressure	40300	full mold	read only	MPa	AI1
2	Set of pressure	40302	full mold	read only	MPa	AI2
3	return pressure	40304	full mold	read only	MPa	AI3
4	Well head oil temperature	40306	full mold	read only	℃	AI4
5	Current suspension load	40308	full mold	read only	kN	AI5, oil pump well

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order number	data item description	memory address	data type	Reading and writing type	unit	remarks
6	displacement	40310	full mold	read only	m	AI6, oil pump well
7	AI7, a custom-defined method	40312	full mold	read only		AI7, power
8	AI8, custom-defined	40314	full mold	read only		AI8
9	Description (1) Hand / automatic state	40316	integer	read only		DI1,0= software automatic, 1= manual.
10	power equipment running state	40317	integer	read only		0= stop; 1= run, other value customization.
11	DI3 state	40318	integer	read only		DI3 state
12	DI4 state	40319	integer	read only		DI4 state
13	power equipment Start and stop control	40320	integer	read-write		1= startup and 2= shutdown.
14	Power equipment start Alarm time delay	40321	integer	read-write	m	Time required to activate the alarm (ring). (count down)
15	Active wake up logo	40322	integer	read-write		
16	The RTU hardware information is in 1	40323	integer	read only		High bytes represent ferroelectric presence information, starting from low bytes such as 0x11 for both ferroelectric 1 and ferroelectric 2; low bytes represent FLASH chip presence 0x02 for FLASH2
17	The RTU hardware information is in 2	40324	integer	read only		High byte represents the clock chip existence, 1 represents the clock existence, low byte standby
18	Enpower collection fault tolerance	40325	integer	read-write		0 represents the enabling power collection when the error, 1 represents the disabled power, compatible with other manufacturers
19	Power collection time	40326	integer	read-write		The wired power acquisition time is correlated to the work map acquisition time, with the default 60S
20	Displacement sensor sleep time	40327	integer	read-write		10-1800 s
21	Load sensor sleep time	40328	integer	read-write		10-1800 s
22	Power sensor sleep time	40329	integer	read-write		10-1800 s
23	Pressure 1 sensor sleep time	40330	integer	read-write		10-1800 s
24	Pressure 2 sensor sleep time	40331	integer	read-write		10-1800 s
25	Pressure 3 sensor sleep time	40332	integer	read-write		10-1800 s
26	Temperature sensor sleep time	40333	integer	read-write		10-1800 s
27	Data acquisition interval	40334	integer	read-write		2-60 in 10ms
28	Electric switch valve control	40335	integer	read-write		1= closed and 2= disconnected.
29	Dormant time of the aqueous	40336	integer	read-write		10 – 1800s, with the default of 30s

order number	data item description	memory address	data type	Reading and writing type	unit	remarks	
	content analyzer						
30	Reserved address	40337～40350					

A.2.1.2 Electrical parameters of the power equipment

order number	data item description	memory address	data type	Reading and writing type	unit	remarks	
1	A phase current	40351	full mold	read only	A	Also for the default 1-phase current	According to the electrical parameters
2	B phase current	40353	full mold	read only	A		
3	C phase current	40355	full mold	read only	A		
4	A phase voltage	40357	full mold	read only	V	Also for the default 1-phase voltage	
5	B phase voltage	40359	full mold	read only	V		
6	C phase voltage	40361	full mold	read only	V		
7	Active power consumption	40363	full mold	read only	kW·h		
8	Reactive power consumption	40365	full mold	read only	kW·h		
9	active power	40367	full mold	read only	kW		
10	reactive power	40369	full mold	read only	kW		
11	back power	40371	full mold	read only	kW		
12	power factor	40373	full mold	read only			

A.2.2 Well work diagram data

order number	data item description	memory address	data type	Reading and writing type	unit	remarks
1	The work map automatically measures the intervals	40981	integer	read-write	minute	RTU timing acquisition of work map data time
2	Manual acquisition of the work map instruction	40982	integer	read-write		Write 0, trigger the actual work map acquisition; Write 16, trigger the simulation work map acquisition;
3	Set points for work map acquisition	40983	integer	read-write		Figure points (default 200, maximum 250 points)
4	The actual number of points in the graph	40984	integer	read only		Number of actual graph acquisition points
5	Time of acquisition of power map	40985～40990	BCD a sign or object indicating number	read only		yyyy-mm-dd hh:mm:ss
6	jig frequency	40991	full mold	read only	Time / minute	
7	travel	40993	full mold	read only	m	
8	Reserved address	40995～41000				

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order number	data item description	memory address	data type	Reading and writing type	unit	remarks
9	250 Point displacement	41001～41250	integer	read only	0.01 m	Data structure (X1, X2, X3,..., Xn); n max 250, same below.
10	250 Points load	41251～41500	integer	read only	0.01 kN	Data structure (Z1, Z2, Z3,... , Zn ）。
11	250 Points current	41501～41750	integer	read only	0.01 A	Data structure ((Y1, Y2, Y3,..., Yn ）。
12	The 250-point active power is present	41751～42000	integer	read only	0.01 kW	Data structure (W1, W2, W3,... , Wn ）。
13	Reserved address	42001～43000	integer	read only		