CNPS.NET

LMRD® Wireless longdistance mudlogging Remote detection sytems

“ ”

Revolutionary technology

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Content

1. Background

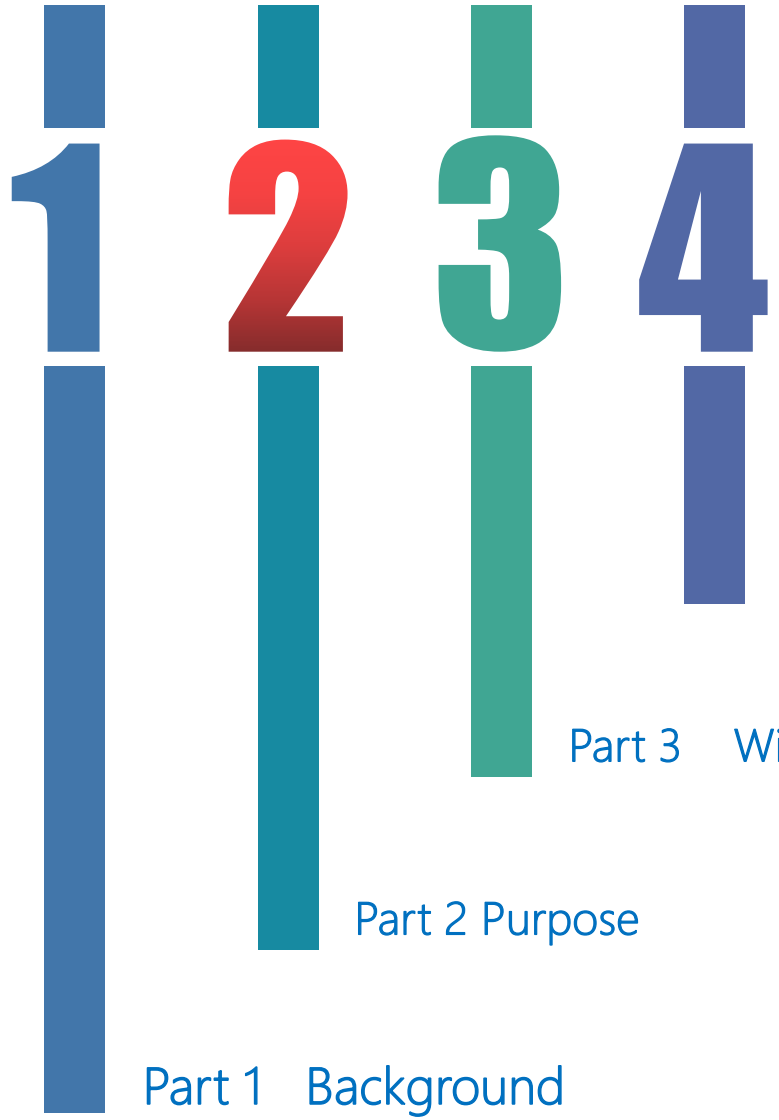
Installation

The different installation situation will need many kinds of intallation way.And the Installation will be hard to do.

Safety

The cables can be broken easily.

Content



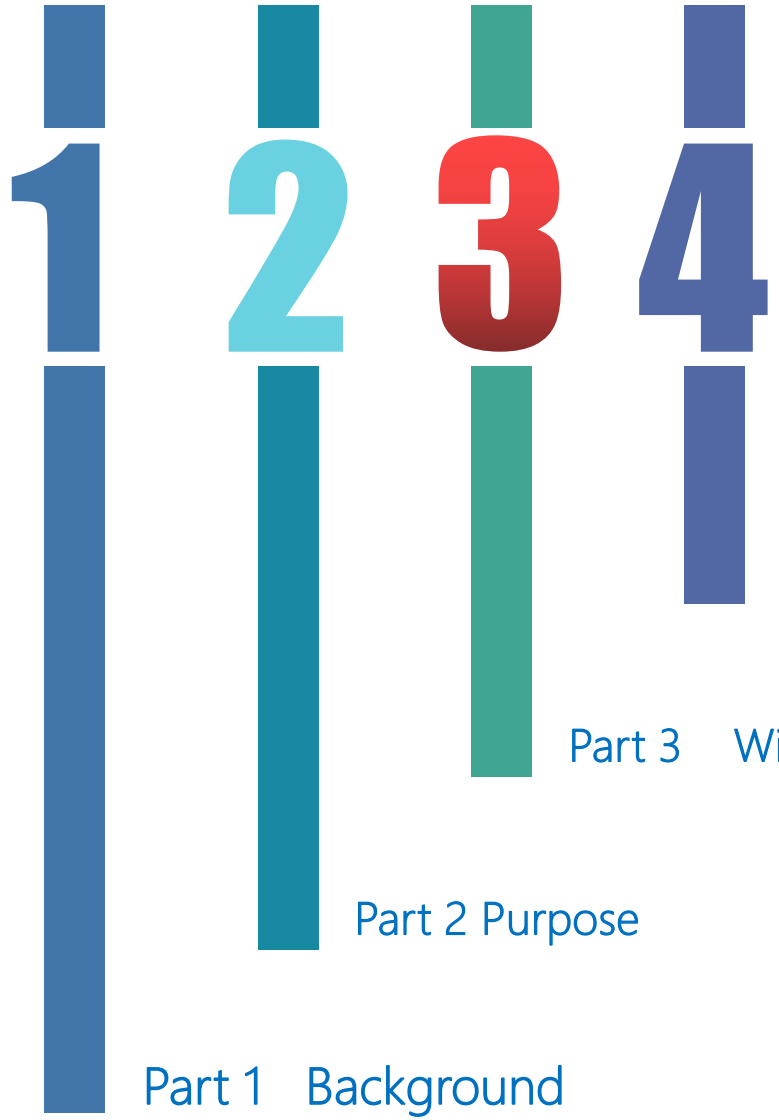
Purpose

- Standardized management of downhole operations
- Install the operation parameter monitoring equipment in the work area.

Significance

- Effectively solve the various operational risks .
- Capable of parameterization, informationization and trace management of downhole operations.
- Prevent downhole accidents caused by inadequate monitoring of operating parameters.

Content



Part 3 The introduction of Wireless Sensor

3.1 Installation area

The Wireless Mud logging Sensor is mainly installed in the drilling rig area, wellhead area, mud pool and other areas of the workover rig. It mainly includes the following monitoring equipment.

Winch sensor	Outlet flow sensor
Suspended weight sensing	H2S sensor X2
Standpipe pressure sensor	Pump stroke sensorX2
Mud level sensor X4	Casing pipe pressure sensor
Turntable speed sensor	Electric torque sensor

3.2 Function

01

Basic setting

The system is basically configured with 15 wireless sensors.

02

Pulse signal sensor signal acquisition

It can complete the signal acquisition of pulse signal sensors such as winch, pump punch and turntable speed.

03

Analog signal sensor signal acquisition

Signal acquisition of analog signal sensors such as torque, hook load, riser pressure, etc.。

04

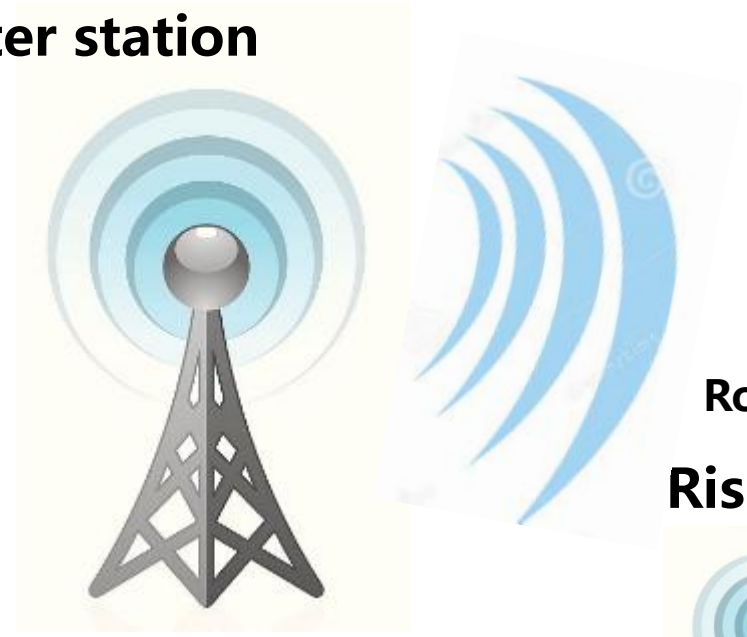
Extensions

Other sensors such as temperature, density, conductance, etc. can be extended as appropriate.

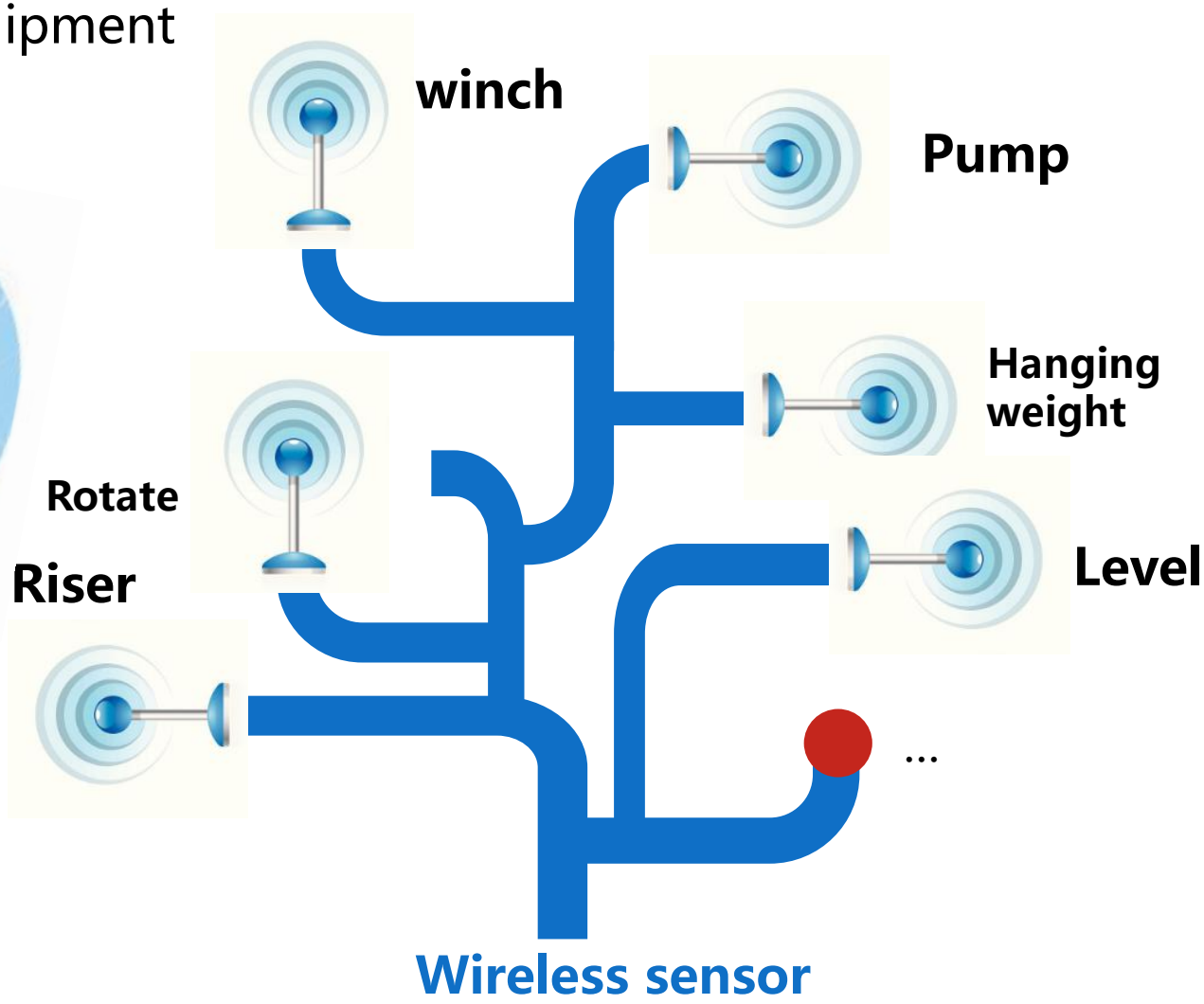
3.2 Main Function

Schematic diagram of the collection equipment

Wireless master station



Main station acquisition + explosion-proof computer



3.3 Feature

- **Easy to install and disassemble**

The wireless sensor is installed on the drill floor with an all-in-one computer to avoid the inconvenience caused by wiring installation.

- **Explosion-proof function**

The all-in-one computer is a data acquisition and processing device, which uses an explosion-proof touch screen to complete the functions of sensor signal acquisition, calibration, storage, etc.

- **Long transmission distance**

Support real-time data input and output of WITS protocol, and realize remote data transmission through the network.

- **Strong anti-interference ability**

The sensor is equipped with an external suction cup antenna interface and is equipped with a 3-10m external antenna to prevent signal shielding and signal interference.

- **High technical indicators**

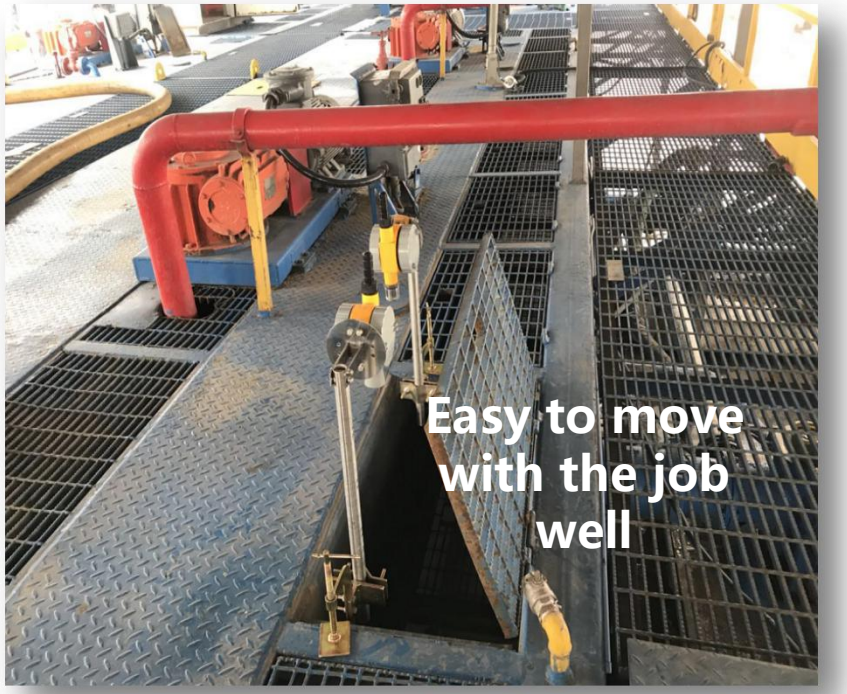
The system software has multiple display modes such as data, curves, and simulation instruments, and supports playback and printing of historical data and curves.

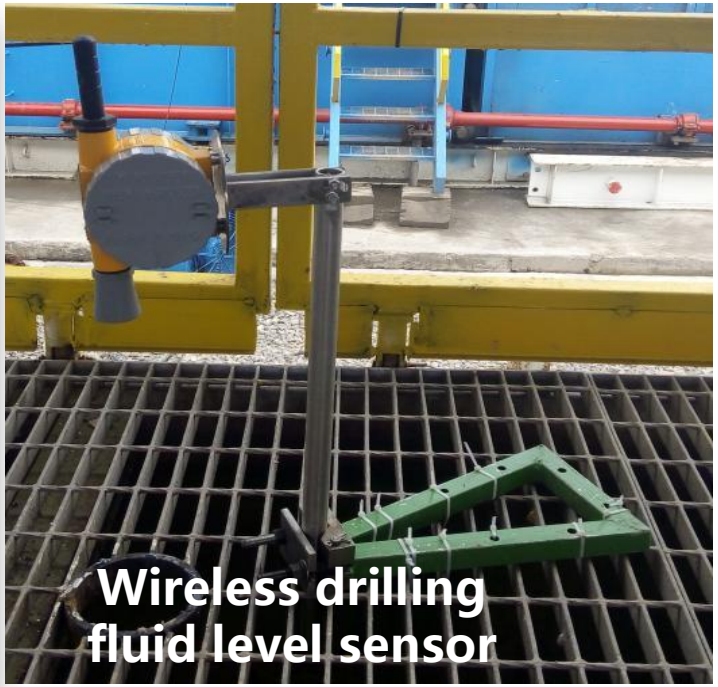
- **Low system power consumption**

Reduce the overall power consumption of the sensor, a group of batteries (rechargeable) can work continuously for more than 50 days.

Easy to install and disassemble

There is no need to set up the bus during installation, and there is no need for on-site wiring. The equipment can be installed and used at any time. It can be installed and disassembled with the operation well. All the sensors can be installed and disassembled within 2-4 hours within 2-4 hours, saving labor and manpower. Save time, reduce maintenance costs, and reduce overall costs.

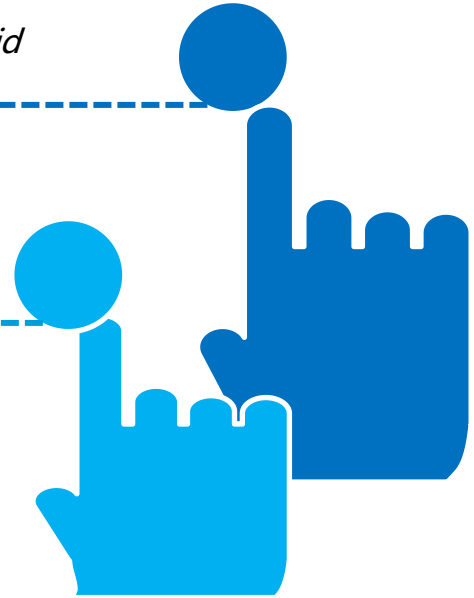




Strong anti-interference ability

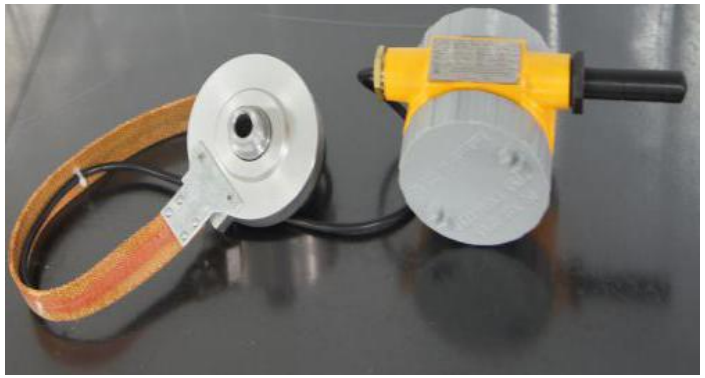
Hibernate-anti-collision communication technology is adopted to avoid multi-module communication conflicts

Data cache retransmission technology to ensure data integrity and accuracy



Explosion-proof function

The all-in-one computer is a data acquisition and processing device, which uses an explosion-proof touch screen to complete the functions of sensor signal acquisition, calibration and storage.



High-tech indicators

Wired sensor probes of the same type or higher are used, and the sensor probe specifications are at or above the wired sensor specifications. Support real-time data input and output of WITS protocol, and realize remote data transmission through the network.

Original imported probe

Hydrogen sulfide, volume sensor

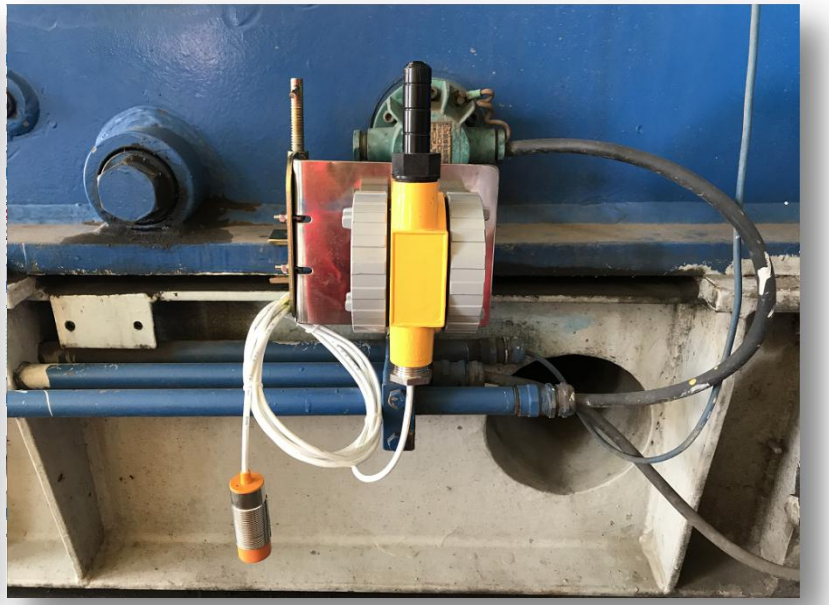
Chinese Probe

Pumping, winch, pressure, etc.

The same standard with wired sensor metrics

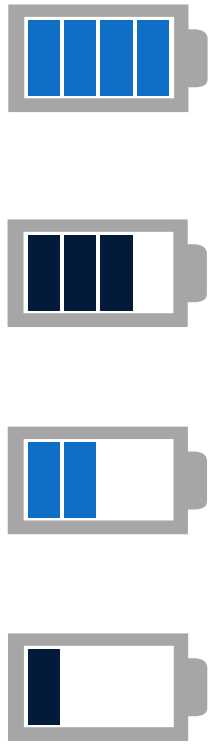
Long transmission distance

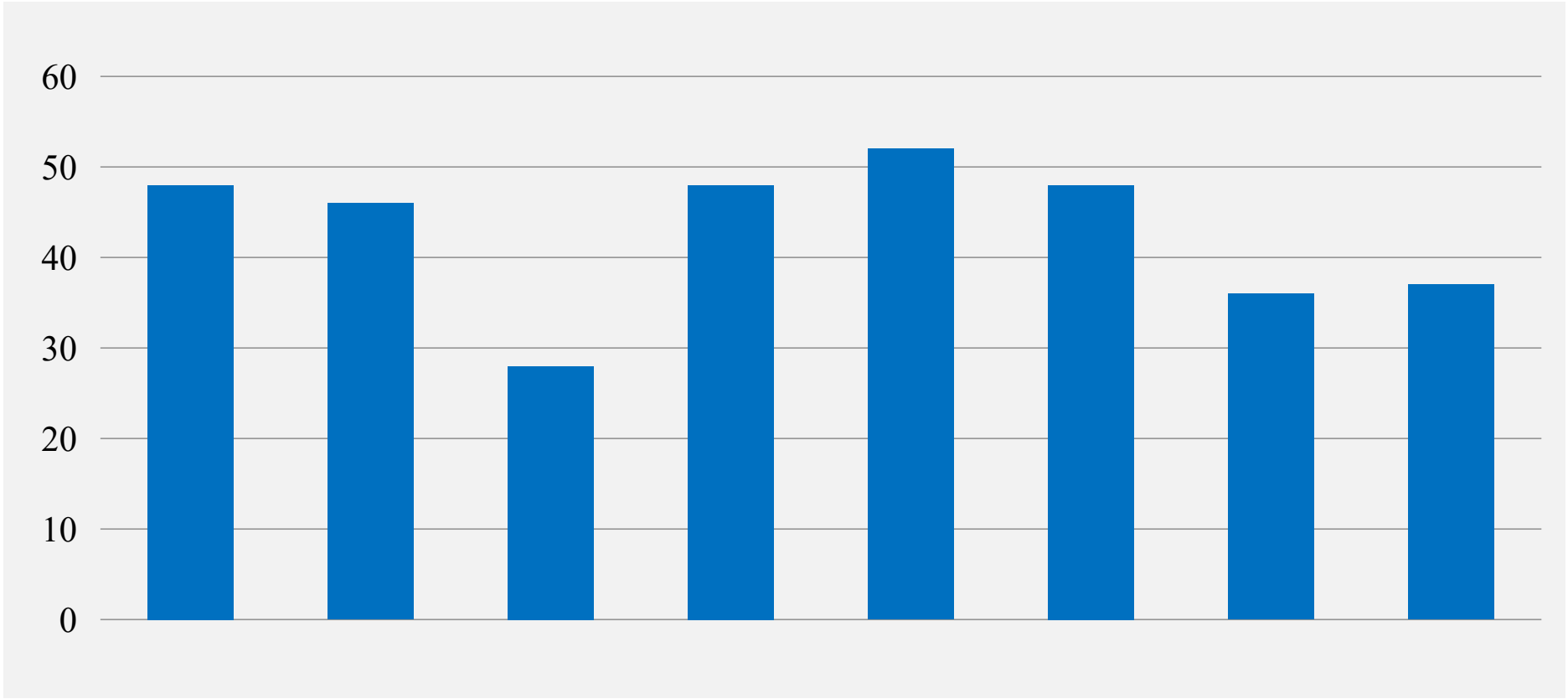
The signal transmission is stable and reliable, and the diffraction ability is strong. The measured line-of-sight transmission is more than 300 meters. Under certain barrier conditions, the effective communication distance can reach more than 100 meters, which meets the requirements for underground installation of offshore platforms.



Low system power consumption

Using power-saving management technology and active sleep technology, the overall power consumption of the sensor is reduced, and the battery life is guaranteed. A group of batteries (rechargeable) can work continuously for more than 50 days.





3.4 Wireless Sensor

Wireless vertical pressure, sleeve pressure,

Hookload sensor

- Working voltage: 3.3VDC
- Output: 0.5~2.5VDC voltage signal
- Maximum operating current: <1.8mA
- Measuring range: 0-40MPa, 0-5MPa, 0-170MPa
- Accuracy: ±1%F·S
- Response time: ≤10ms
- Wireless transmission box working temperature: -40~70°C
- Sensor probe operating temperature: -20-60 ° C
- Protection level: IP65

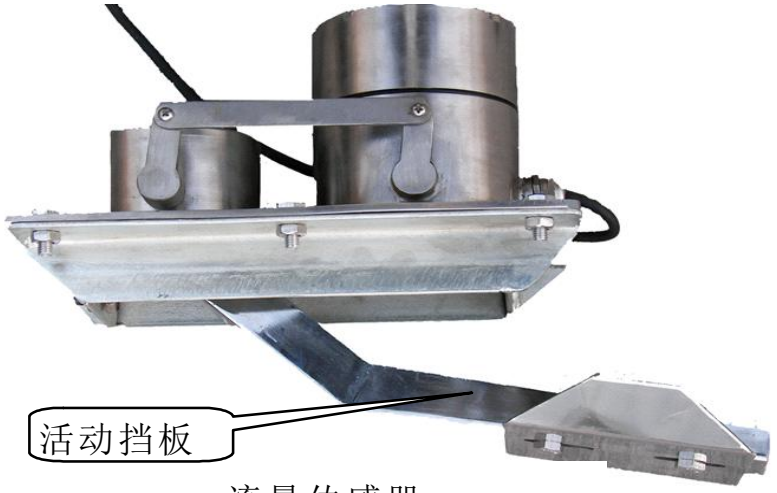
3.4 Wireless Sensor

Wireless flow out sensor

Used to measure relative changes in oil drilling mud outlet flow

The relative change of the drilling fluid flow rate can be measured by linearly changing the resistance value of the resistor to reflect the angular displacement of the baffle.

Through the change of the inlet and outlet flow, it is possible to monitor whether mud leakage and formation fluids enter, and timely forecast for wells, lost circulation, and blowouts.

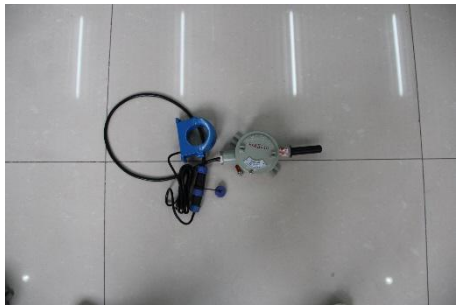
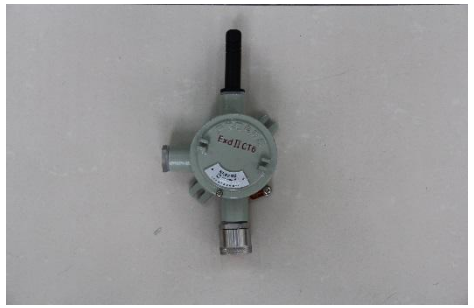


流量传感器

3.4 Wireless Sensor

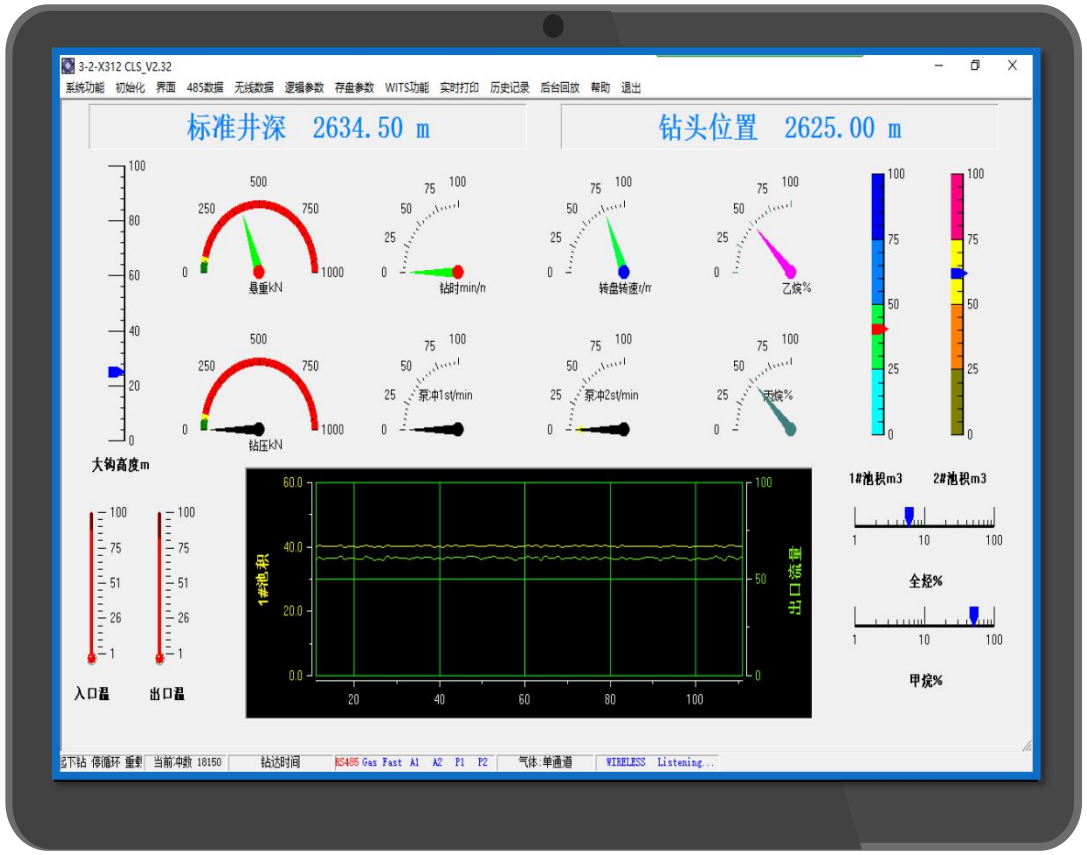





3.5 Software

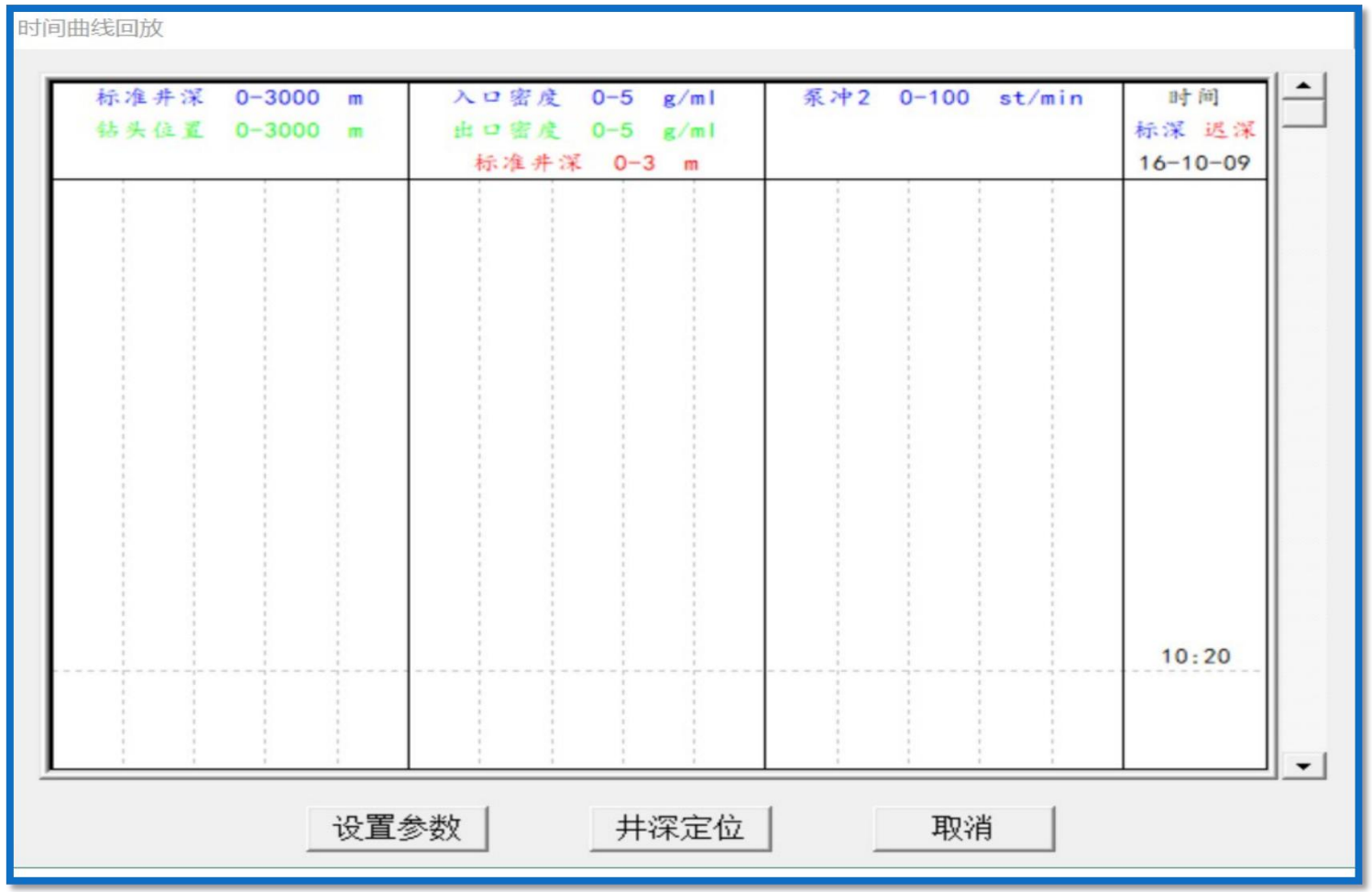
The software can be designed as the requests.



3.5 Software


DZK01 PLS_V2.29
系统功能 初始化 界面 485数据 无线数据 逻辑参数 存盘参数 WITS功能 实时打印 历史记录 后台回放 帮助 退出
时间
标深 迟深
0 悬重 kN 10
0 钻压 kN 1000
0 大钩高度 m 50
0 标准井深 m 1
0 泵冲1 st/min 100
0 泵冲2 st/min 500
0 钻时 min/m 10
0 入口流量 l/s 100
0 全烃 % 100
0 甲烷 % 100
0 C2+ % 10
0 标准井深 m 10
标准井深 100.00 m
钻头位置 100.00 m
垂直井深 100.00 m
大钩高度 -1.32 m
立压 -8.78 MPa
悬重 0.00 kN
硫化氢1 -68.7500 ppm
泵冲1 0.00 st/min
出口密度 0.00 g/ml
全烃 0.0564 %
套压 0.00 MPa
1#池积 10.71 m³
出口导率 306.03 s/m
出口流量 -23.26 l/s

3.5 Software-Display

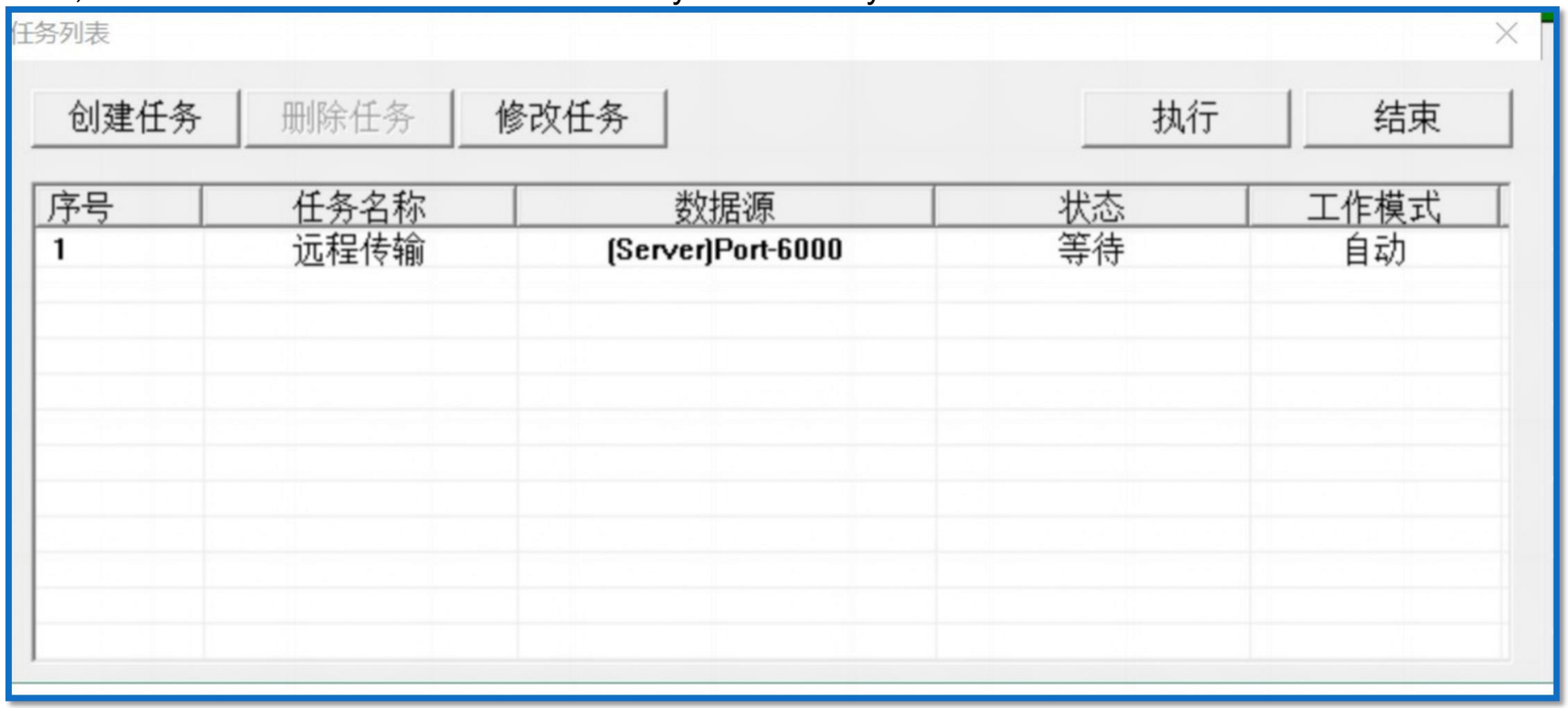


Time curve playback diagram

3.5 Software

Extended function - remote transmission module

The field data can be sent to the information center of the base in real time through the remote transmission module, so that the field data can be viewed anytime and anywhere.

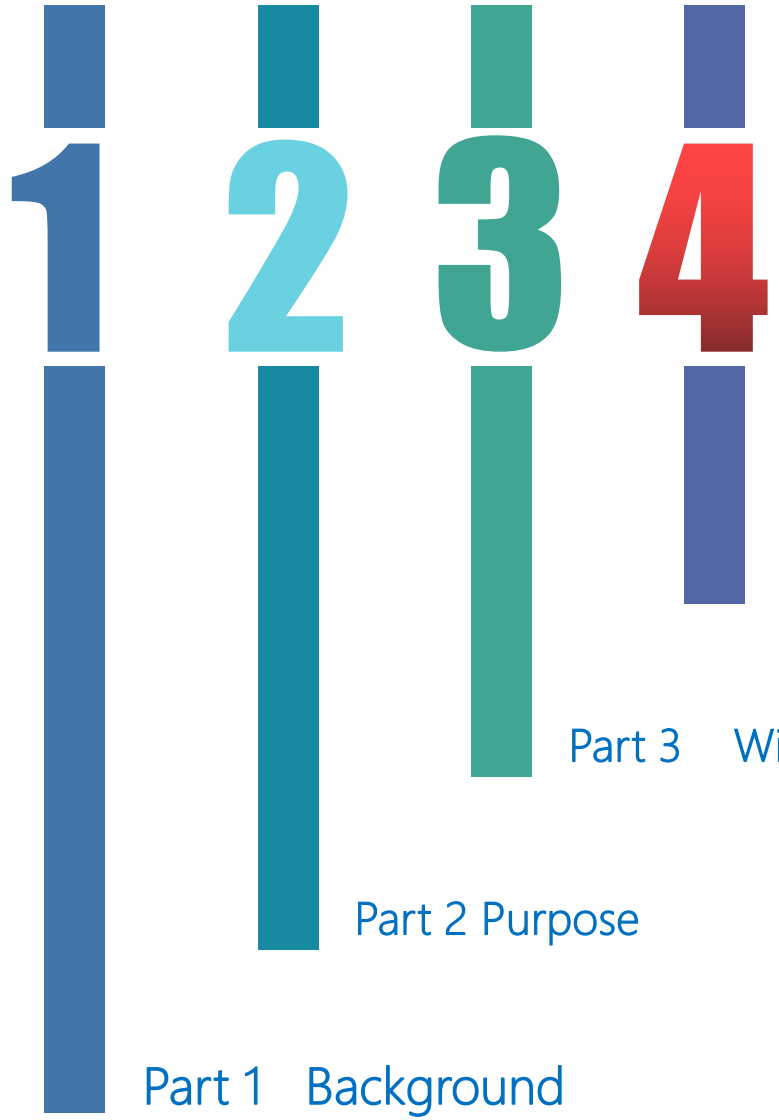


3.6 Advantage

Compared

Wirelss Sensor		Traditional Sensor
Time Short	VS	Long Time
Need less worker		Need more worker
Cost low		Cost more
Small footprint		Large footprint
Light		Heavy

Content



From 2016 to the present, the use of the parameter meter in the production and workover construction of onshore and offshore oilfield has achieved an accurate and accurate prediction of 20 wells, and the timely and accurate rate is 100%. It provides an important guarantee for ensuring the safety of workover construction, reducing investment and improving the overall efficiency of exploration and development.

No	Exception type	Time	Timely and accurate
1	Well leak	13	100%
2	well kick	1	100%
3	Drilling tool piercing	3	100%
4	Abnormality of suspended weight	2	100%
Total		**19**	

Thanks

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