抽 油 机 远 程 监 控 系 统

Remote monitoring system for pumping units

Product Function

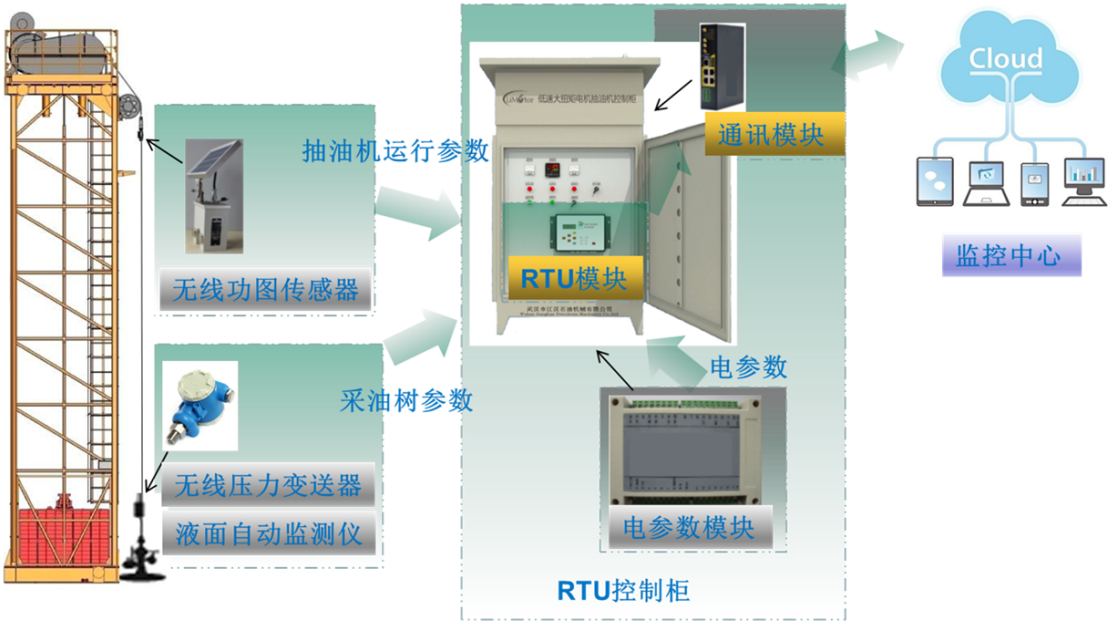
★ Data collection: current, voltage, power factor, reactive energy, active energy, frequency converter status, pumping unit status, stroke, stroke rate, pumping unit load curve, pumping unit fault alarm, indicator diagram, dynamic (static) liquid level, oil pressure, casing pressure, return pressure, wellhead temperature (optional).

★ Remote real-time control of the start and stop of the pumping unit, adjustment of stroke and stroke.

★ It can achieve overvoltage, overheating, overload, shortage, automatic protection shutdown, and upload all data to the remote transmission system of the pumping unit. After data collection, combined with the intelligent analysis software of the mechanical well, it can achieve functions such as fault diagnosis analysis, fault warning, and prediction.

★ Recorded complete production data, such as pressure, production rate, current, motor torque, etc., providing a basis for oil well analysis and decision-making, and facilitating oil well management.

★ The system has the function of automatically optimizing the operating parameters of the pumping unit in conjunction with the downhole dynamic liquid level measurement system. This function can automatically achieve efficient oil recovery, reduce the number of well inspections, reduce rod pump wear, and protect the oil reservoir.



Schematic diagram of intelligent oil extraction system

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Main equipment performance parameters

★ Performance indicators of automatic liquid level monitoring instrument

1）Environmental parameters:
Temperature: -40 ℃~+75 ℃;
Humidity: less than 95% RH (without condensation);
Pressure : 0-10MPa;
2）Measurement range:
Liquid level: 20-5000 meters (1%)
Set pressure: 0-5MPA ± 1% F·S;
3）Test mode:
The test interval is ≥ 20 seconds, and the number of variable intervals can also be used for testing, supporting up to 12 task tests.
4）Output signal and form: RS485/4G,
Remote wireless: 5G/4G/GPRS/NB LOT;
Near field wireless: ZigBee/WIFI/433/LORA; Wired: RS485/RS232/4-20mA;
5）Communication protocol:Modbus RTU/ TCP、Modbus RTU、ModbusTCP，Custom active upload;
6）Explosion proof sign: Exd ib mb IIB T4 Gb

★ Performance indicators of indicator

1）Environmental parameters:
Temperature: -40～85℃；Humidity: 0～100%RH；
Atmospheric pressure:86～106 kPa；
Vibration frequency: (10～500)Hz,
Peak acceleration ＜ 19.6m/s2; AC external magnetic field ≤ 400A/m.
2）Power supply:
Solar energy+built-in lithium battery, 3.6V/6600mAh;
3）Test mode:
Load range: 0-150KN; Accuracy: better than 0.5% F.S;
Overload capacity: ≥ 1.5F.S; Stability: ± 0.1% FS/year;
Acceleration displacement measurement range: 1-12m, accuracy: 1.0% F.S;
Pulse measurement range: 1-12 r/min, minimum 1 time/min, accuracy: 1%;
The maximum number of points for power graph collection is 255,
Collection cycle ≥ 10 minutes, settable; Alarm for well opening and shutdown.
4）Wireless communication:
ZigBee A11-GRM wireless communication protocol, transmission distance (open and direct view) ≥ 200m;
5）Explosion proof sign: Ex ib IIC T4 Gb,
Explosion proof certificate number: CE18.2244X;
Protection level:IP68。

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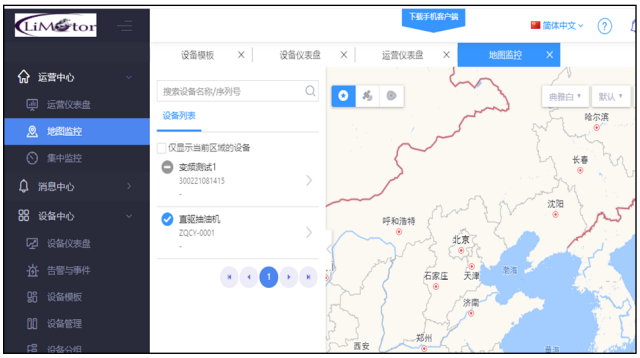
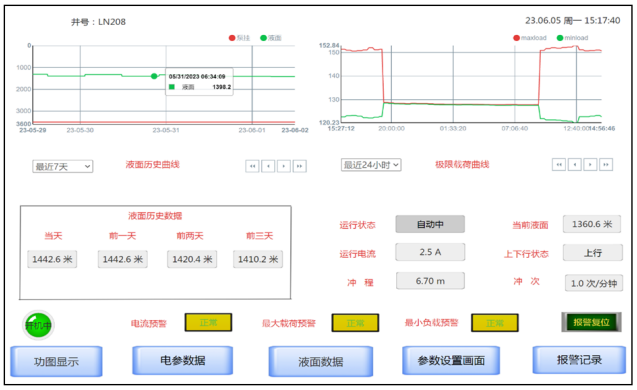
Monitoring system control interface

PC control interface



Device location display page

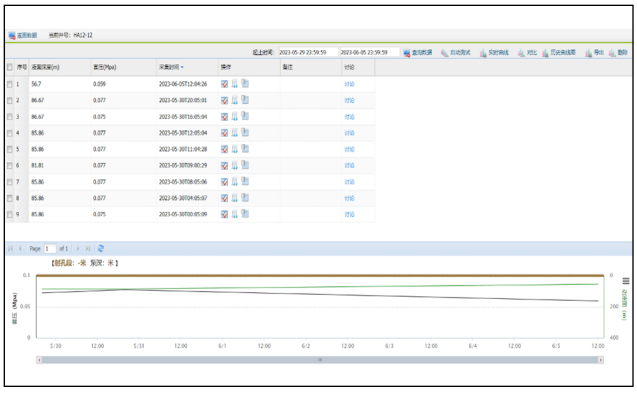
Device centralized display page



System Control Main Page

Power diagram display page

Equipment electrical parameter data page



Liquid level data page

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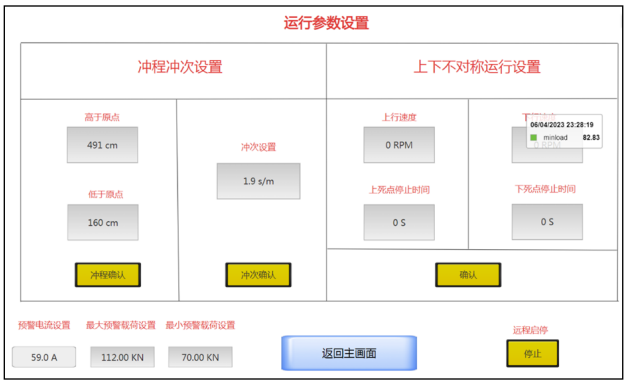
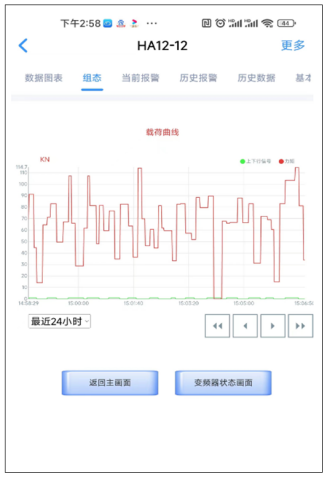
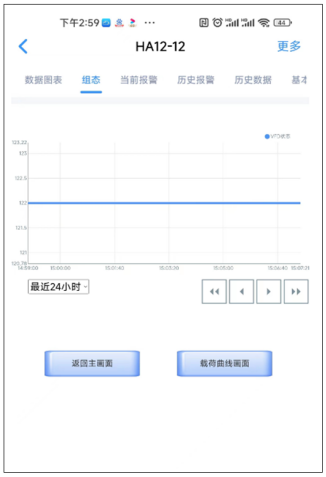


Parameter Setting Page

Alarm Record Page

Mobile terminal control interface





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