

Oil & Gas Exploration

VFD container

(VFD means varied frequency drive)

Jiangsu OCPT Institute Co., Ltd.

广义牵引



Jiangsu OCPT Institute Co., Ltd (OCPT) was established in 2013. Production area 50000 M² , located in liyang City Jiangsu province, P.R.C.

Key products of the company are Inverters, rectifiers and choppers. The company's products are applied in engineering driving fields such as oil & gas exploration, Port transportation, Traction system of rail vehicles, electric driven ships and other mobile equipment. Some products have been tested by TUV.

The company has been rated as a national high-tech enterprise, a provincial four-star Cloud-based enterprise, a municipal traction converter control system engineering technology research center and a municipal industrial design center. The company cooperates with Nanjing University of Science and Technology (NUST),for R & D of high-power electric drive system.

The company has obtained ISO 22101:2017 , ISO 9001:2015, ISO 14001:2015, ISO 45001:2015,IRIS.

VFD container used in drilling rig

Electricity replaces Diesel



Diesel Driven



Electric Drive

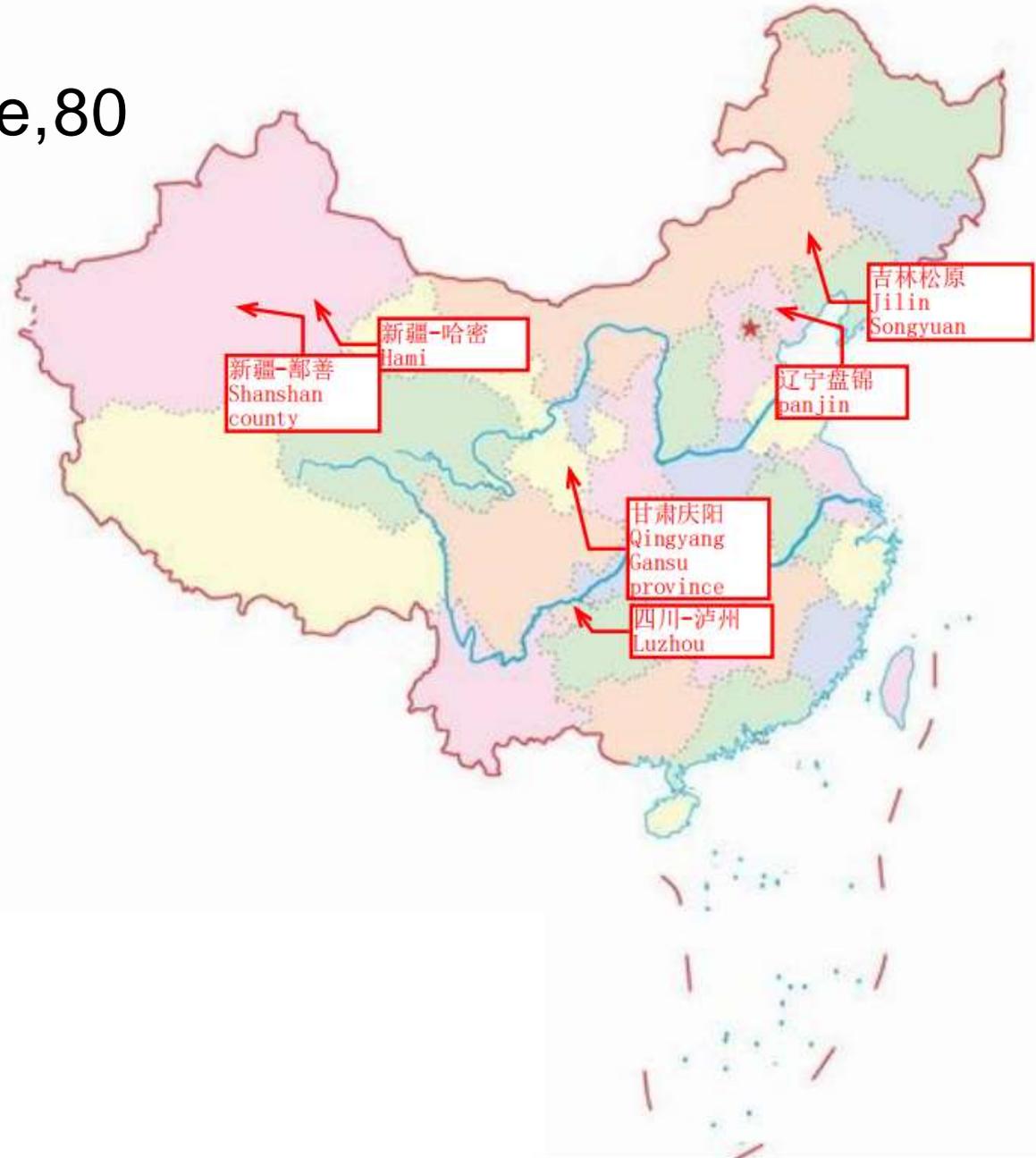
Electricity replaces Diesel

- Significance of the project
 1. **Environmental protection and noise reduction**
 2. **Fuel cost saving:** a single set of equipment saves \$80,000 of fuel cost per month.
 3. **Greatly reduce the maintenance cost:** the cleaning cycle of diesel engine is changed to 15 days / time. AC motors are maintenance free.
 4. **Realize remote regional operation management.**



Electricity replaces Diesel

- VFD used nationwide, 80 containers in total.



Diesel to Electricity

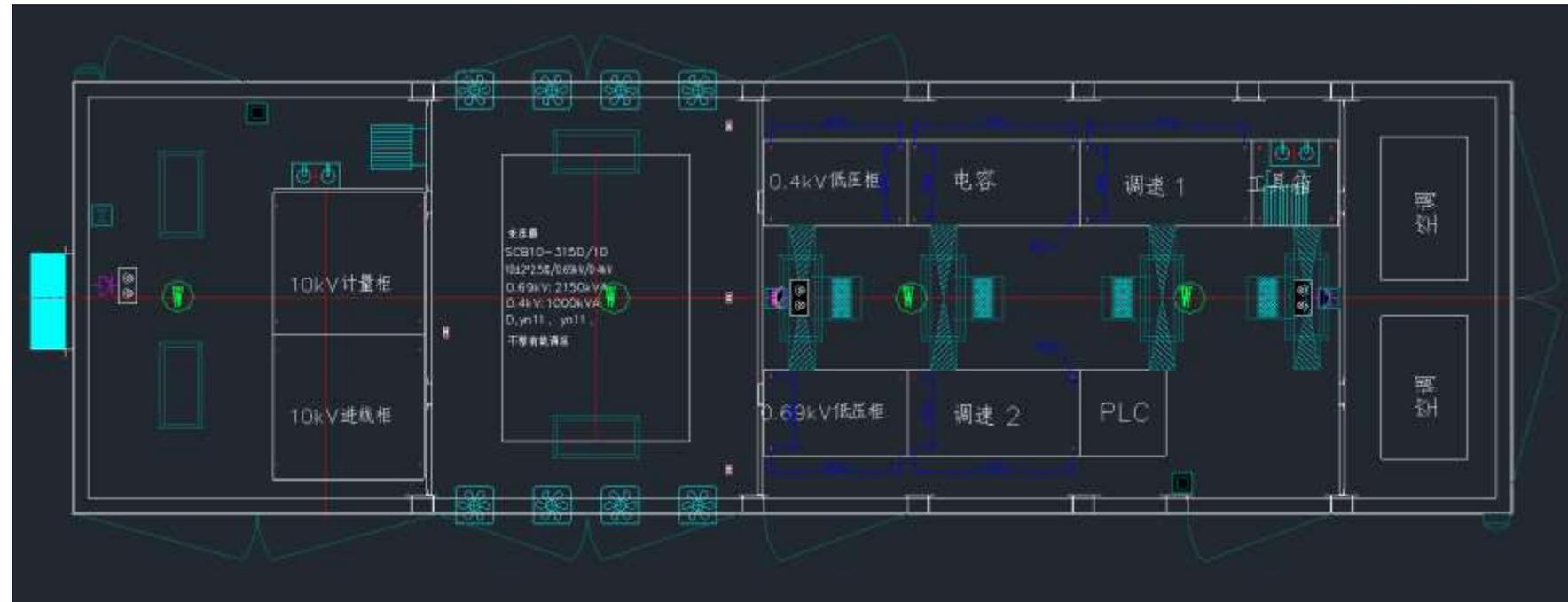
- Equipment introduction

| Component | Quantity | Specification and model |
|----------------|----------|---|
| VFD | 1 | Size: 10M * 3M * 3M Weight: 20 t |
| Traction motor | 2 | Size: 2.2m * 1.8m * 2.1m Weight: 5.4 t |



Diesel to Electricity

- Internal structure of VFD



Diesel to Electricity

- VFD components composition



| Component | Input / output |
|---------------------------------|---|
| voltage transformer*1 | Input: 3-phase-10kv / 6kV Frequency: 50Hz Output ①: 600V, 2450kv · a Output ②: 400V, 700kv · a |
| AC speed regulating cabinet * 2 | |
| HVC | |
| GGD | |
| PLC control cabinet | |
| Air conditioner * 2 | |

Diesel to Electricity

- Detailed motor parameters



Specification and model

- Size: 2.2 x 1.8 x 2.1 m
- Weight: 5.4t
- Rated power: 1100kW
- Rated voltage: 600V
- Rated current: 1244A
- Rated speed: 500 RPM
- Max Speed: 2200 RPM
- Rated torque: 21010Nm
- Frequency range: 0-111.5HZ
- Power factor: 0.89
- Efficiency: 95.6%
- Three-Phase, Six-pole

Diesel to Electricity

- AC speed regulating cabinet



| Model | Input Voltage (V) | Output voltage (v) | Frequency (Hz) | Power (KW) | Size (mm) | Rated current (A) | Weight (KG) |
|------------|-------------------|--------------------|----------------|------------|----------------|-------------------|-------------|
| CX690-1000 | 600-690 | 0-Output voltage | 0-2000 | 1000 | 1200X600X2200 | 1090 | 1000 |
| CX690-1200 | | | | 1200 | 1200X600X2200 | 1300 | 1000 |
| CX690-1400 | | | | 1400 | 1200X800X2200 | 1500 | 1200 |
| CX690-1600 | | | | 1600 | 1400X1000X2200 | 1715 | 1300 |
| CX690-1800 | | | | 1800 | 1400X1000X2200 | 1820 | 1300 |
| CX690-2000 | | | | 2000 | 1400X1000X2200 | 2130 | 1400 |

Diesel to Electricity

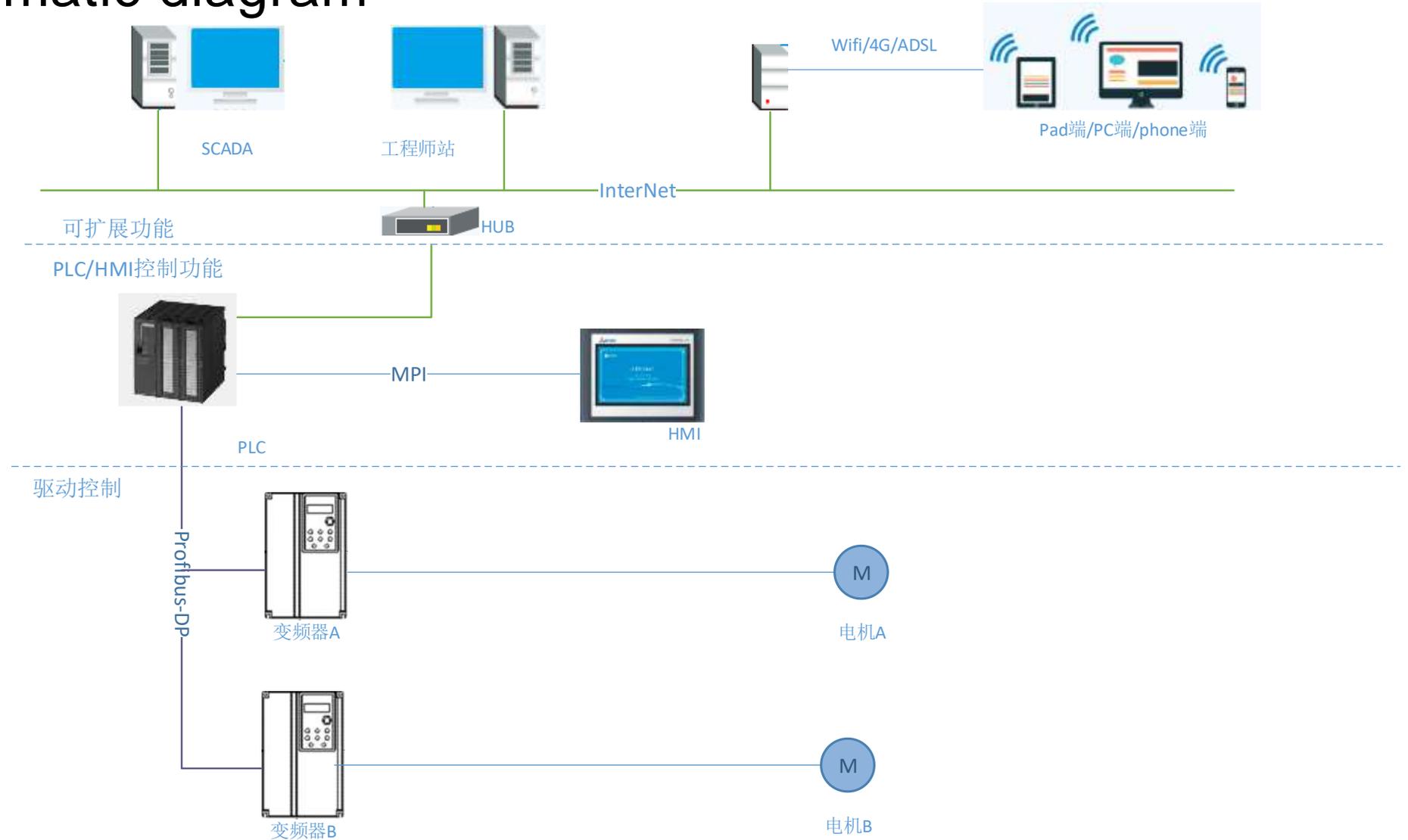
- PLC control cabinet



Control mode:
PLC + HMI

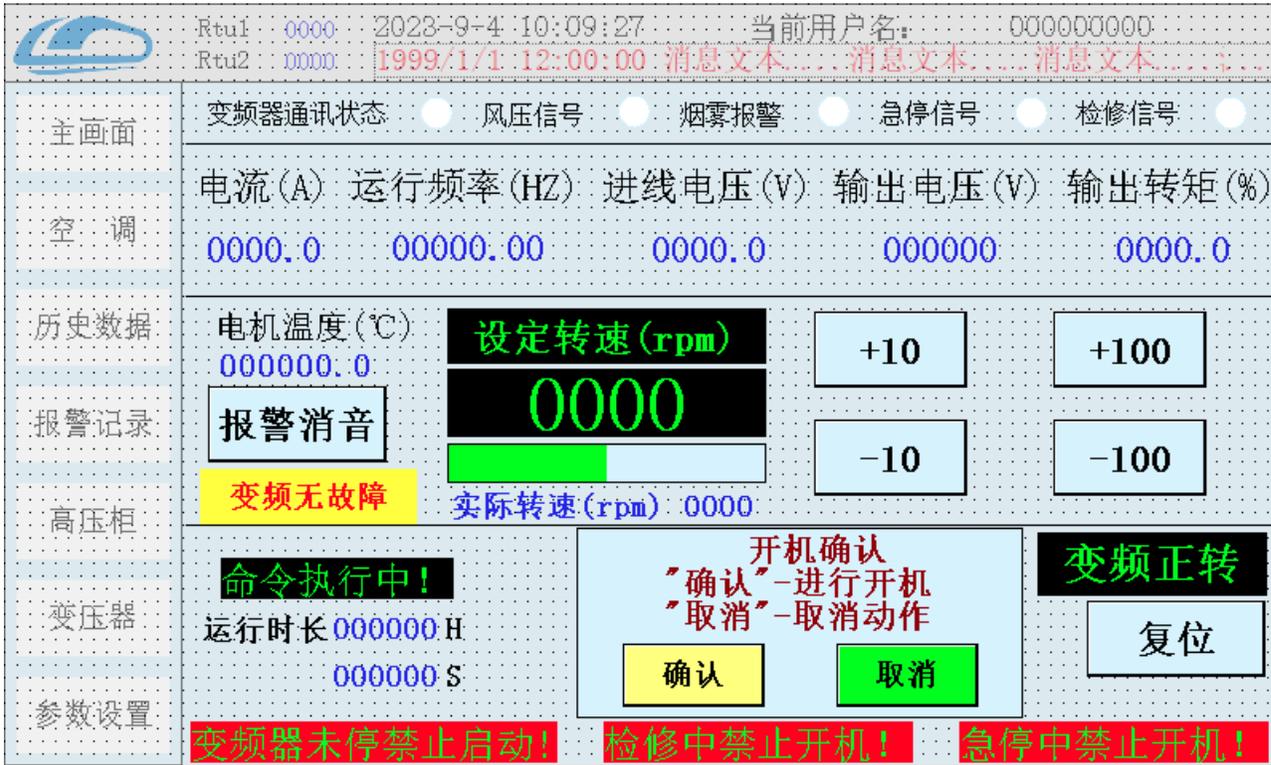
Diesel to Electricity

- System schematic diagram



Diesel to Electricity

- Cloud-based management——Customized development



PLC monitoring interface

Diesel to Electricity

- Cloud-based management



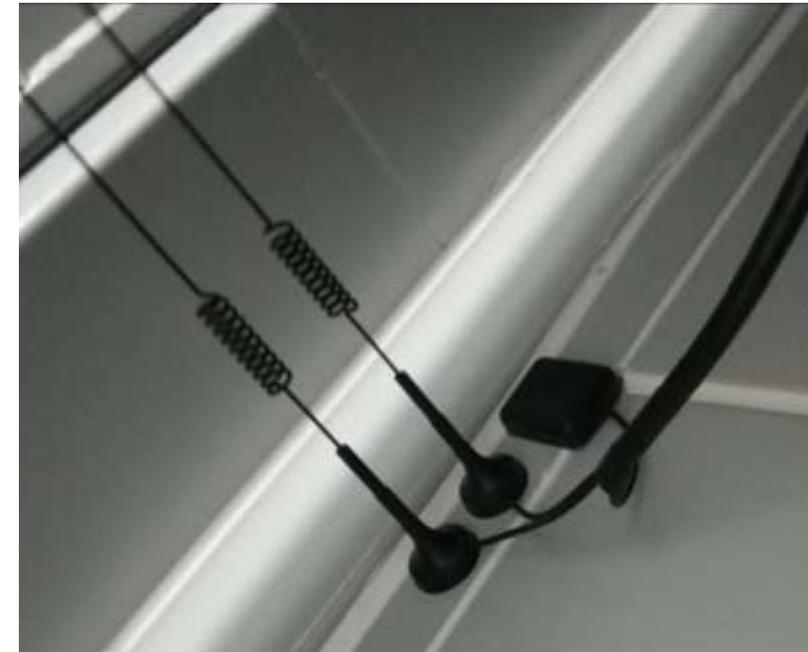
HD camera



14-50



Remote communication module



Antenna

Diesel to Electricity

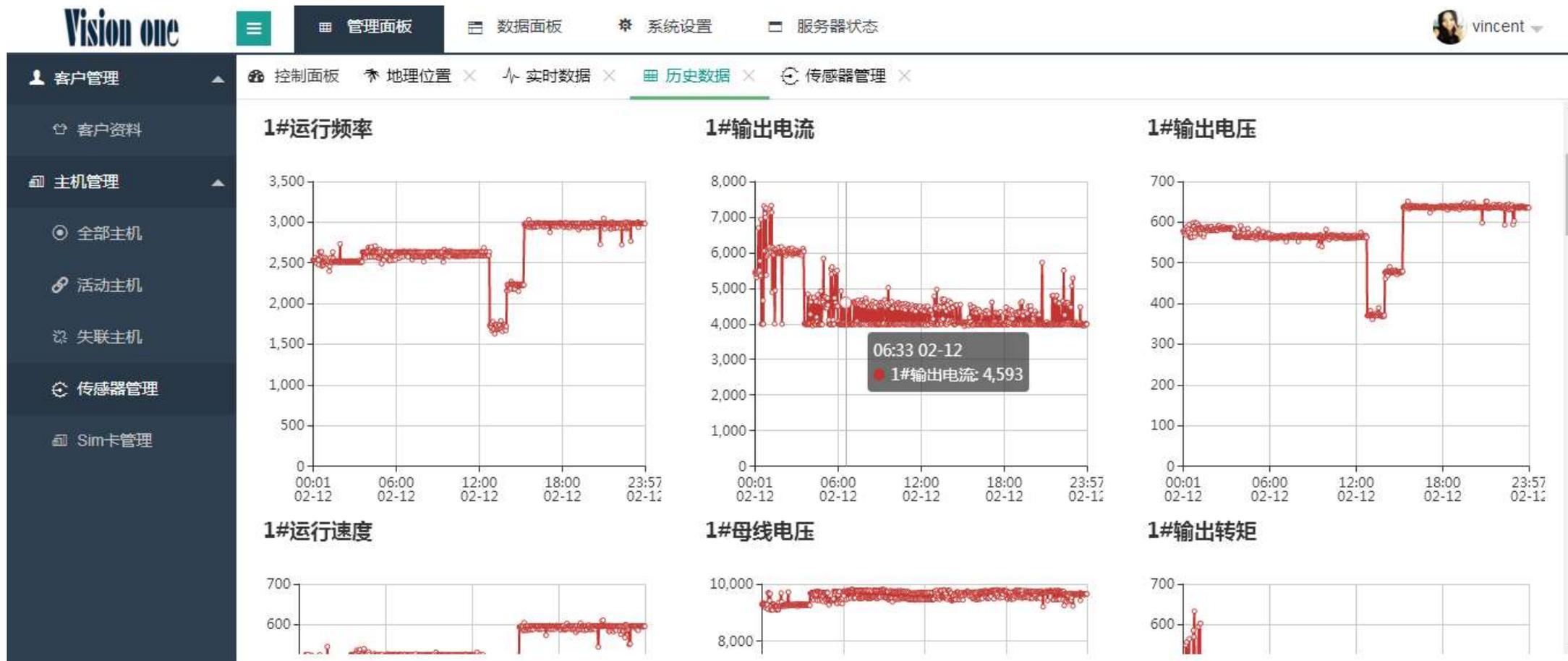
- Cloud-based management



PC - management interface-GPS

Diesel to Electricity

● Cloud-based management



PC - dynamic curve

Diesel to Electricity

- Stable performance



The drilling depth in Shanshan, Xinjiang has reached **6000 meters**.

VFD for Fracture(7000HP/5000HP)

- Site conditions



Equipment of Shale gas exploitation - VFD for Fracture(7000HP/5000HP)*2



Equipment of Shale gas exploitation - VFD for Fracture(7000HP/5000HP)*2



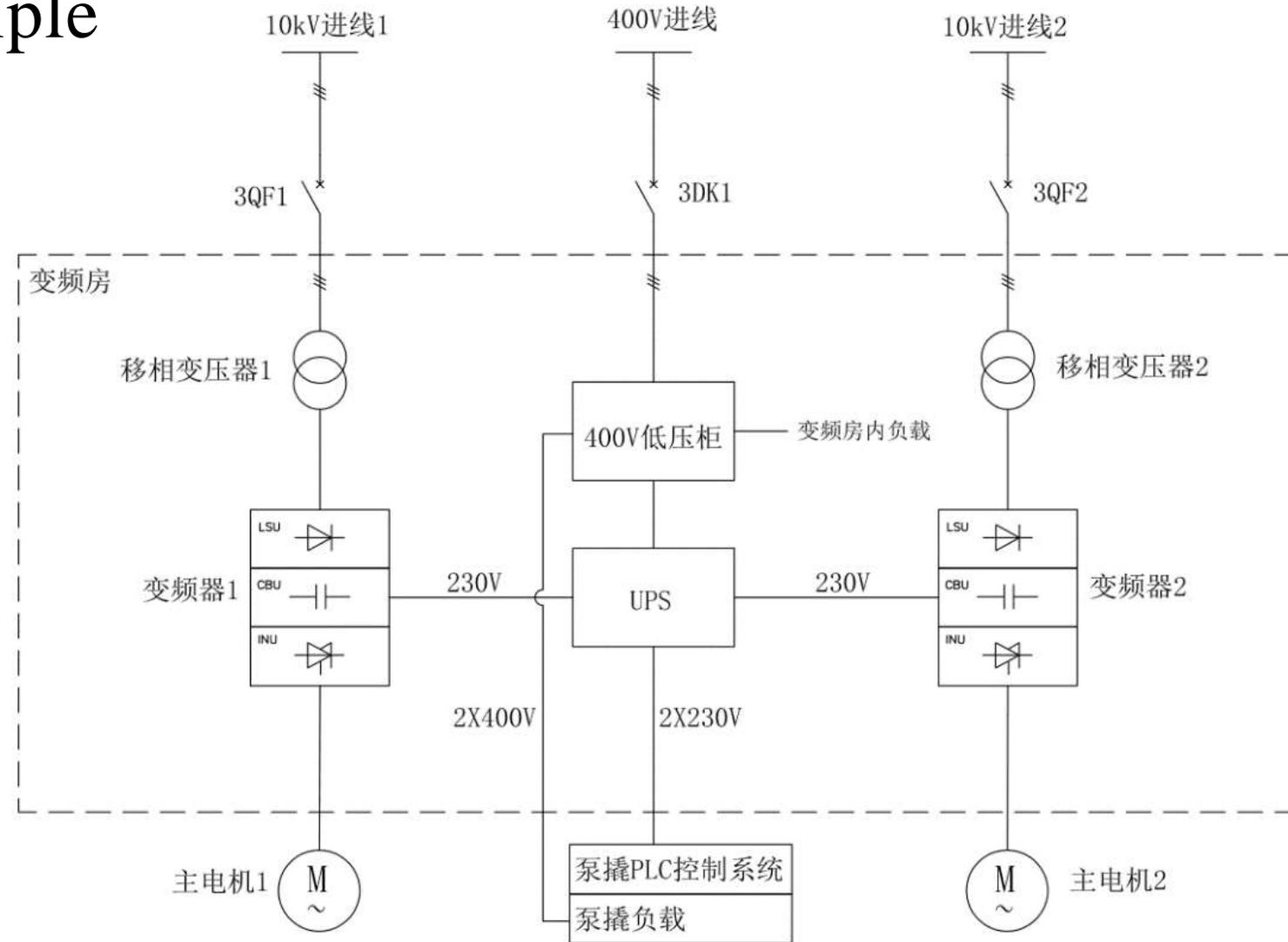
VFD for Fracture(3000 HP)

- General condition



VFD for Fracture(7000HP/5000HP)

- System principle





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Jiangsu OCPT Institute Co.,Ltd.

Product Operation

The 7000 electric drive fracturing equipment was appraised as **The International Advanced Level** by CNPC in December 2020, and was selected as the **First Major Technical Equipment Project** in the energy field of the China National Energy Administration in 2021.

全球单机功率最大电驱压裂橇投入商业应用

原创 宝石机械 宝石机械 2022-02-28 16:18

国家科技攻关项目
7000型电驱压裂橇组
商业首秀



2月20日，宝石机械成都宝石专用车公司4台7000型电驱压裂橇在四川泸州叙永县境内的阳102H25平台正式投入商业应用。

The background features a complex, abstract geometric pattern of overlapping triangles and squares in various shades of blue, from dark navy to light sky blue. Scattered throughout are several white squares of different sizes and orientations. Two thin, vertical brown lines are positioned on the left and right sides of the central text.

OCPT help customers succeed!

Jiangsu OCPT Institute Co., Ltd.