Multi-Propagation Resistivity

Tel: 1 778 8310158 | Fax: 1 778 8310168 | Email: etech@etech-eie.com www.etech-eie.com

Electromagnetic wave resistivity logging can accurately obtain formation resistivity by measuring the propagation characteristics of electromagnetic waves (phase difference and amplitude attenuation) in oilfield operations, and its core role covers geological orientation, fluid identification, reservoir evaluation and engineering risk early warning.

- **Multi-depth resistivity detection**

By emitting 2MHz/50kHz electromagnetic waves, the resistivity curves of 8 different detection depths (0.1-5m range) are obtained by phase difference/amplitude attenuation measurement, and the radial fine evaluation from invaded zone to undisturbed stratum is realized.

- **Azimuth imaging capability**

The 8-sector azimuth gamma and resistivity imaging technology can identify the stratum interface (such as oil-water boundary and shale interlayer) in real time, and the geological steering accuracy is significantly improved.

- **Dynamic environment correction**

Patented dynamic compensation algorithm is adopted to eliminate the interference of instrument eccentricity and mud invasion (especially oil-based mud) on measurement and ensure the reliability of high resistivity formation data.

I. Structural design

1. Center type (probe hanging type)

2, wall-mounted type

3, the sleeve wall type

II. the technical interface

Support 485, CAN, RS232 serial port and M30 single bus protocol; Special protocols can be customized according to customer requirements.

III. the working principle

1. Coil layout

- Symmetrical distribution of four engines: four transmitting coils (T1-T4) are symmetrically distributed on both sides of the double receiving coils (R1,R2).

- Double receiver centering: the receiver coil is located at the axis of the instrument and directly captures the formation response signal.

2. Working mode

The transmitting coil simultaneously excites multi-frequency electromagnetic waves (range: 50 kHz–2 MHz), and the receiving coil measures the phase difference and amplitude attenuation to invert the formation resistivity.

IV. the core performance advantages

1. High-resolution stratigraphic identification

The superposition of multiple emitters enhances the signal strength, and the accuracy of stratigraphic boundary identification is significantly improved (especially for thin interbeds).

2. strong anti-interference ability

Symmetrical launching structure counteracts the interference of borehole irregularity and mud invasion, and the measurement error is obviously reduced.

3.broadband adaptability

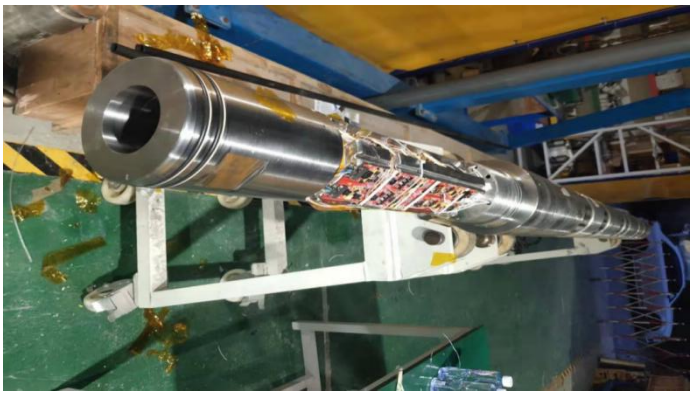
Support 50 kHz–2 MHz multi-frequency operation, taking into account the requirements of shallow high resolution (high frequency) and deep detection (low frequency).

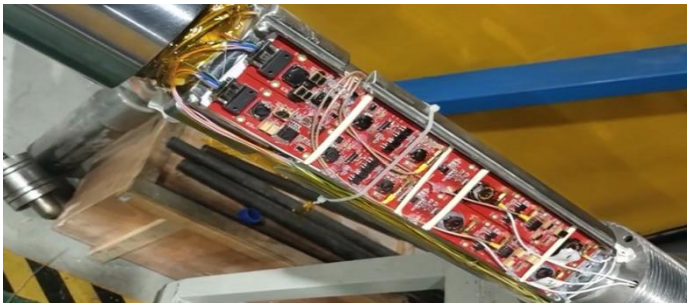
4. Real-time environmental correction

Differential measurement with double receiving coils eliminates instrument bias error and temperature drift.

5. meet the requirements of 175 degrees Celsius underground high temperature working environment.

V. Schematic diagram of electromagnetic wave resistivity





Sleeve embedded electromagnetic wave resistivity

VI. field application

The stability and accuracy of electromagnetic wave resistivity measurement data have reached international similar products, as shown in the logging curve.