

# SK-CMS Comprehensive Logging Instrument

## SK-CMS Comprehensive Logging Instrument

### Overview

- SK-CMS is an internationally advanced comprehensive logging system launched by Shanghai Shenkai Petroleum & Chemical Equipment Co., Ltd. The instrument is integrated with many advanced technologies including the pioneering explosion-proof CAN bus technology, fast chromatography technology, measurement while drilling (MWD) technology, on-site geological analysis instrument joint application technology, etc., making it truly become a comprehensive on-site information interpretation and evaluation center.
- SK-CMS comprehensive logging instrument has been widely recognized by logging personnel, which not only serves major domestic oil fields, but also is widely applied in over ten countries and regions including the US, Russia, India, Pakistan, truly becoming a national brand.



### Features

- Differential chromatography: solving the problem of identifying true and false oil and gas displays caused by oil mixing, adding organic additives, and drilling fluid pollution;
- Explosion-proof CAN bus transmission: simplified sensor installation, convenient expansion, automatic fault diagnosis, and self-protection;
- Remote transmission: real-time information transmission between well pads and remote bases independent of communication methods
- Dual hot backup: double insurance is added to ensure the normal operation of logging work and data security
- Well pad information center: open database structure and WITS standard interface to achieve integration with third-party data
- Paperless recording: paperless recording and logging process reproduction that cannot be tampered with throughout the process, and direct generation of PDF documents;
- Professional abnormality warning: a professional system for engineering abnormality prediction to reduce engineering accidents, greatly reducing operational risks and ensuring the safety of drilling;
- Comprehensive evaluation of oil and gas: integrated with various information including engineering, gas logging, geological analysis, etc., greatly improving the compliance rate of interpretation and evaluation of oil, gas, and water layers
- Rich application software to withstand international testing—Chinese, English, and Russian versions that meet international service requirements

### Technical Indicators

- Power unit

Flameproof transformer	
Input voltage	380V (480V, 440V, 220V optional)
Input frequency	50Hz
Output voltage	380V±5%
Output frequency	50Hz

### UPS uninterruptible power supply

Input voltage	220V±10%
Input frequency	35~65Hz
Output voltage	220V±2%
Output frequency	50±1Hz
Power-on time	≥15min

### Instrument room safety indicators

the insulation resistance between the phase line and the machine room grounding conductor is greater than 2M, and the instrument must be equipped with a good grounding device

#### • Gas analyzer

### Natural gas hydrocarbon component analyzer

Analysis cycle	30, 90s (user-defined analysis of cycle time)
Test component	C1~nC5
Minimum detection concentration	total hydrocarbon $1 \times 10^{-6}$ , hydrocarbon component $1 \times 10^{-6}$
Measuring range	total hydrocarbon $1 \times 10^{-6} \sim 1$ , hydrocarbon component $1 \times 10^{-6} \sim 1$
Methylethane separation degree	≥ 0.85, obvious separation under the condition of 1% methane mixture (C1/C2 300:1)
Noise	≤0.5% F.S/h
Baseline stability	≤1% F.S/h
Repeatability error	≤2.5% F.S

### Natural gas non-hydrocarbon component analyzer

Measurement content	CO <sub>2</sub>
Minimum detection concentration	CO <sub>2</sub> 0.1%
Measurement range	CO <sub>2</sub> 0.1%~100%
Baseline drift	1%/7d of full scale

Repeatability error	±5%
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• **Sensor**

### Sensor

Pump stroke sensor/rotary table speed sensor range: 0-1920 strokes/minute

Rotary table torque sensor	range: 0~6MPa
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Riser pressure sensor range: 0~42MPa

Casing pressure sensor	range: 0~68MPa
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Hook hanging load sensor range: 0~6MPa

Drilling fluid temperature sensor	range: 0~125 °C
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Drilling fluid density sensor range: 0~3g/cm

Drilling fluid conductivity sensor	range: 0~50ms/cm, 0~300ms/cm
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Drilling fluid outlet flow sensor range: 0~100% (relative flow)

Drilling fluid pool volume sensor	range: 0~5m
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Drawworks sensor range: 0~9999, hook position setting: 0~50m

Hydrogen sulfide sensor	range: 0~100ppm, response time: T80<30s
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• **Geological instrument**

### Carbonate analyzer

Measurement range 0~100% carbonate

Accuracy	1%
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### Mudstone density tester

Measurement range 1~3g/cm<sup>3</sup>

Minimum sample weight	0.05g
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Resolution 0.01g/cm<sup>3</sup>

### Fluorescence meter

Power supply 220VAC、50Hz

Power 40W

### Thermal vacuum distillation degasser

Power supply 220VAC、50Hz

Heating power 300W

System vacuum  $\leq 1.3\text{KPa}$

System tightness after the vacuum degree reaches 1.3KPa, visually check the vacuum gauge for a drop of no more than 0.26KPa within 2 hours after the gas valve is cut off

Mud bottle volume 250ml

#### • Electric degasser

### Electric degasser

Working voltage three-phase380VAC

Power 370W

Speed 1400rpm

Explosion-proof grade ExdIIBT4

#### • Software system

### Software system

windows operating system

Chinese, English, Russian, and Spanish versions

Metric and English system and custom units conversion

Rich background application software