

REALology Intelligent Drilling Fluids Monitoring System

Vertechs REALology Intelligent Drilling Fluids Monitoring System (REALology DR) is a fully automated, portable, real-time monitoring platform developed in compliance with API standards. With a compact, standardized, and intelligent design, it delivers continuous 24/7 measurement of key drilling fluid properties including density, rheology, pH, chlorides, and temperature, providing accurate and reliable data for drilling operations. REALology DR has been deployed in more than 120 wells with over 20,000 hours of proven field performance in both land and offshore environments.

The second-generation system improves measurement precision and reliability, while introducing a comprehensive data analysis and control suite, empowering users with:

- **Drilling Efficiency Enhancement:** real-time parameter optimization with recommended fluid property adjustments
- **Downhole Condition Support:** intelligent modeling of complex downhole scenarios with actionable response strategies
- **Well Control Risk Mitigation:** operational support and proactive alerts from influx detection through to intelligent kill sheet simulation



FEATURES

- **Universal Fluid Compatibility:** supports both WBM and OBM drilling fluids
- **Modular Design:** the largest module measures 0.6 × 0.6 × 1.0 m, allowing flexible configuration to optimize investment costs
- **Fully Automated Operation:** 24/7 unmanned monitoring and operation
- **Standardized Measurement:** designed in accordance with API standards, with accuracy certified by CNAS (China National Accreditation Service for Conformity Assessment)
- **Smart Connectivity:** real-time remote data transmission with 5G IoT-enabled control
- **Risk Early Warning:** Vertechs data analytics engine enables real-time detection of operational risks and provides support for optimized decision-making



Fig1. REALology DR modules (from left to right: rheology module, density module, pH/chloride module, control module)

VERSION COMPARISON

Version	Fluids	Measured Parameters	Features
REALology DR Lite	WBM+OBM	Density, Temperature, AV, PV, YP, n, K, 3-600rpm, Gels	Cost-effective solution for monitoring essential drilling fluid parameters

REALology DR Pro	WBM+OBM	Density, Temperature, AV, PV, YP, n, K, 3-600rpm, Gels, Chlorides, pH	Comprehensive measurement of key drilling fluid parameters, suitable for all fluid types
REALology DR Pro Max	WBM+OBM	Density, Temperature, AV, PV, YP, n, K, 3-600rpm, Gels, Chlorides, pH, Constant-Temperature Heating, Funnel Viscosity, Emulsion Breaking Voltage, Resistivity	Complete drilling fluid performance measurement with integrated data analysis software

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