

# ECHO SYSTEM

The Phoenix patent protected Echo System is a sophisticated EM receiver that employs active downhole signal conditioning to ensure operators have uninterrupted communication with the industry's fastest, and only, unified telemetry system—Velocity. The two technologies work in unison to maximize data transmission rates in formation types that are typically problematic for EM systems.

- ▶ Ability to support multiple operations on a given pad simultaneously
- ▶ Optimal system placement with real-time signal analysis during deployment
- ▶ Long lasting battery life for up to 6 months of use
- ▶ Drill from surface to TD reliably in all mud conditions
- ▶ Minimize power consumption while maximizing real-time data rates (up to 16 BPS)
- ▶ Enables high density real-time LWD and drilling dynamics logs at high penetration rates

## OPERATING PARAMETERS

Parameter	Range
Cased Hole Wellhead Connection (with plug)	2 7/8 RD EUE
Casing ID Minimum	2.70 in
Pressure Control Rating	3,000* psi
Gas Pressure Limit (with lubricator assembly)	100 psi
Wellhead Height Above Surface (with lubricator assembly)	5 ft

\* 5,000 psi rated pressure control equipment available upon request