

AccuSteer MWD System



The AccuSteer MWD—a premier directional drilling and geo-steering system, provides accurate downhole data necessary to optimize efficient wellbore placement by addressing the application of directional drilling, geosteering and drilling efficiency.

The Ryan AccuSteer™ MWD system has been developed specifically for the unconventional shale plays and is driven by Ryan's patented mud pulsing system. The system has been proven in the roughest drilling environments to reliably provide accurate data for directional drilling and geo-steering applications that require advanced measurements and survey.

AccuSteer's azimuthal gamma imaging improves on existing gamma imaging systems by allowing improved detection of bed boundaries and formation dip enabling

precise wellbore placement. Drilling dynamics such as Weight on Bit (WOB), Torque on Bit (TOB), Bend on Bit (BOB), and Stick Slip Index (SSI) measurements prevent premature BHA failure and improve drilling efficiency. Accurate annular pressure measurements (PWD) enable real time ECD calculations.

The propagation resistivity option provides accurate and repeatable measurements for formation evaluation and also includes deep reading measurements that are ideal for geosteering.

Advantages of AccuSteer

Features	Benefits
No wellsite assembly required	Increases reliability with fewer hands on the tool at the wellsite
Industry's shortest length – 30 ft.	Provides fast and easy BHA makeup, reducing HSE risks
Propagation Resistivity	Optimized for formation evaluation and geosteering
Azimuthal Gamma Image	Identifies whether a change in gamma resulted from drilling up or down geologic structure
Annulus and Bore Pressure	Increases visibility to downhole pressure dynamics
Drilling Dynamics (WOB/TOB/BOB/SSI)	Improves drilling efficiency and maximizes ROP
Continuous Inclination	Enhances positional awareness, eliminates check shots and results in a smoother wellbore
Shock & Vibration	Measures downhole vibrations to help avoid hazardous drilling conditions before problems arise



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AccuSteer MWD System Specifications

Sensor Accuracy	Inclination $\pm 0.1^\circ$ (Range: 0–180°)
	Azimuth $\pm 1.0^\circ$ (Range: 0–360°)
	Tooface $\pm .1^\circ$ (Range: 0–360°)
	Continuous Inclination: $\pm 2^\circ$ (0°–5°) $\pm 1^\circ$ (5°–8°) $\pm .5^\circ$ (8°–13°) $\pm .1^\circ$ (greater than 13°)
	Gamma ray $\pm 2\%$ (Range: 0°C–150°C); $\pm 5\%$ (150°C–175°C) $\pm 0.1^\circ$
Azimuthal Gamma	Dual Azimuthally Focused Scintillation Detectors 16 Bin Processed Image 9:1 Front/Back Shield Ratio
Dynamics	WOB: 1.6% max error TOB: 0.9% max error BOB: 0.9% max error
Pressure	Annulus Pressure $\pm 0.2\%$ (range 0–20,000psi) Bore Pressure $\pm 0.2\%$ (range 0–20,000psi)
Signal Transmission	Positive Mud Pulse and EM
Collar Size	4¾ in. OD x 29.3 ft x 3½ IF box pin
	6½ in. OD x 30.1 ft. x 4½ XH box pin
Flow Ranges	4¾ in.: 150–325 gpm
	6½ in.: 300–850 gpm
Sand Content	< 1% by volume
LCM Tolerance	25 lbs/bbl medium well mixed LCM
Battery Life	500+ hours
Onboard Memory	2GB
Operating Temperature	175°C (347°F)
Maximum Pressure	20,000 psi
Dog Leg Capability	API connection limited
Max. Vibration, g	20 (rms, random, 15–1,000 Hz)
Max. Shock, g	500
Propagation Resistivity Option	Spacings: 48-, 28-, 18 in. Frequencies: 2mHz, 400kHz, 152kHz

Accurate and reliable decoding is enabled by Ryan's advanced signal decoding. State-of-the-art sensor technology is applied with advanced packaging techniques to provide surgically precise measurements while still being oilfield tough.

Because AccuSteer has the industry's shortest overall length – 30 ft., it offers improved wellsite handling and BHA control. Both transmitted and additional data is stored in memory for quality control and redundancy. Memory data is analyzed by Ryan experts to ensure quality using Ryan's proprietary diagnostic software.

This patented technology allows Ryan to provide a unique service to our customers that enables them to cost-effectively drill and accurately hit their targets. Our experienced engineering team and highly skilled field technicians are focused on addressing operator's unique needs and providing the highest level of quality customer service and technical support in the industry.

Please contact us today for exceptional MWD services and to experience the Ryan difference.



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