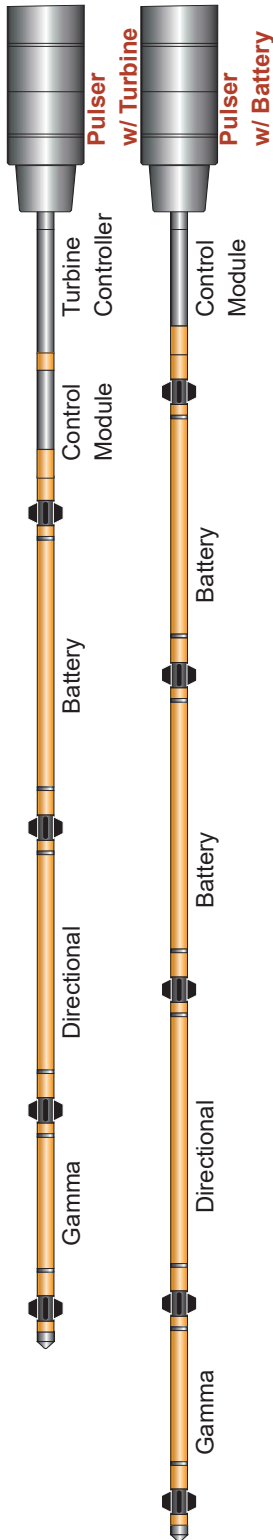


# Top Mount Pulsar



The Top Mount Pulsar is an upgrade option that offers all the benefits of top mount architecture while maintaining the reliability and flexibility which is required in today's market. The assembly is a drop in replacement for any of the standard Tensor Elite Pulsers.

## Features and Benefits

### Reliability

The Top Mount Pulsar has demonstrated extensive and continued success in every global region, being trusted to perform in wells totaling millions of feet. The fully mature system has a history of usage comparable with any system in the industry.

### Power Flexibility

The system can be powered by an integrated turbine alternator or by traditional batteries. The high-efficiency alternator, together with leading control electronics, outputs stable and reliable power at a fraction of the cost of batteries. When using an alternator a single battery is run to facilitate flow off surveys.

### LWD Connectivity

The Pulsar is fully compatible with any sensor, collar based LWD system, or integrated rotary steerable system offered by Black Diamond. Connection is achieved by standard Rotary Connectors or the Tensor Elite Collar Connection System.

### Pulse Quality

The Pulsar is trusted to create unmatched pulse quality across its full operating range delivering 2 BPS in the most challenging environments. Featuring a proprietary valve system the Pulsar gives unrivaled performance in the harshest drilling environments. Workshop service prepares the Pulsar for wide range of hydraulic regimes, this removing the need for any rigsite setup or tuning. Use a of restrictors can extend the already wide acceptable flow rates.

Technical Specifications							
Collar O.D.	3.125 in.	3.375 in.	4.75 in.	6.75 in.	8.0 in.	9.5 in.	
Tool Connections	3 in. CDP	2 7/8 in. AOH	3 1/2 in. IF	4 1/2 in. IF	6 5/8 in. REG	7 5/8 in. REG	
Flow Rate Range (US gpm)	75-175	75-175	105 - 350	210 - 900	300 - 1,350	450 - 1,600	
Max. Dogleg Rotating/ Sliding (°/ 100 ft)	Slick	16/ 50	12/ 36	7/ 25	6.5/ 12.5	4.5/ 10.5	3.5/ 7
	Flex	21/ 70	-	21/ 82	9.5/ 23	-	-
Max. Pressure (psi)	20,000		Max. Temperature Operating (°C)			302	
Max. LCM Tolerance	1.0 % at maximum fluid velocity						
Lost Circulation Material	40 ppb fine to medium nut plug pre-mix						
Axial & Lateral Vibration	5 g RMS (1-250 Hz; 1 sec. integration) or 45 g peak (0.025 sec. shock pulse)						
Power Source	Turbine Alternator or Battery						
Telemetry	Positive Pulse						
Maximum Data Rate	2 bits per second						