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High-temperature Turbine Alternator

The APS Turbine Alternator[†] is a high-temperature, axial flow design for use in measurement-while-drilling (MWD) and logging-while-drilling (LWD) systems. This development, partially supported by Sandia Laboratories, provides reliable, ongoing power at temperatures of up to 200°C, taking the place of expensive, short-lived disposable batteries. The turbine is configurable to match the required flow rates for typical BHA/hole size combinations.



Product Specifications

Operating Temperature	347°F (175°C); 390°F (200°C) option
Output Power	150 W
Voltage, Regulated (Configurable)	28 - 60 VDC
Housing Diameter	1.875 in. (48 mm) / 2.06 in. (52 mm) / 1.875 in. (48 mm)
Overall Length	60 in. (1,524 mm)
Weight	Approx. 45 lbs. (20.4 kg)
Turbine Housing Diameter	2.5 in. (64 mm) for 3.5 in. (89 mm) drill collar 3.125 in. (79 mm) for 4.75 in. (121 mm) drill collar 3.75 in. (95 mm) for 6.5 in. (165 mm) & 6.75 in. (171 mm) drill collar 5 in. (127 mm) for 8 in. (203 mm) & larger drill collar
Connections	The uphole and downhole connections use the robust APS 1.625-10 Stub Acme shouldered connections. Male threads are copper plated for galling resistance. Other connections or crossovers can be supplied for different architectures.
Connectors & Feed-Through Conductors	Deutsch 22 conductor connectors with 4 x 26 AWG and 5 x 30 AWG braided shielded feed-through conductors, plus 2 power and 2 ground lines and a frequency line.

[†] U.S. Patent #7,201,239



TECHNICAL DATA SHEET