

Pulser Driver System

“Newsco has a resourceful and talented research and development team that creates innovative solutions to MWD processes.

This pulser driver assembly is the most revolutionary mud-pulser system to reach the market in decades.”

Pulser Driver Assembly

An innovative and efficient MWD mud-pulser assembly to replace troublesome solenoid systems

Our Challenge

The pulser driver assembly is a critical component of the MWD system. It must function reliably for long periods and in harsh conditions to dependably transmit down-hole information to the surface via the mud stream. Conventional systems use solenoids, which are inefficient, generate excessive heat, have a weak push-pull force, are prone to failure, and are time consuming and costly to service.

Our Solution

When we decided to reinvent the MWD pulser system, we started from the ground up. Our unique and innovative rotary-to-linear drive system eliminates inefficient and failure prone

solenoids. Our goals were fivefold: Energy efficiency, dependability, ease of serviceability, modularity, and compatibility with existing equipment. This new approach extends the battery life by more than 500% to 700 hours. Typical MTBF of this rugged assembly is greater than 2000 hours, more than twice that of a conventional solenoid system. Tungsten-carbide components reduce wear in high-wash areas. The assembly is modular, greatly reducing setup and servicing time as well as lowering the cost of replacement parts. The entire assembly is contained within a non-magnetic beryllium-copper housing.



Pulser Driver Assembly Specifications

MTBF	> 2000 hours
Battery life	≈ 700 hours @ 1.5 sec DR
Battery operating range	16-30 VDC
Operator interface	Pulser Driver Software Interface (PDSI)
Carrier	6061-T-6 alloy aluminum
Circuit board, solder	High-temp polyimide, high temp solder
Operating temperature	150 °C

There are three major components in the system: Driver Control Module, Pulser Driver Motor, and Linear Drive Assembly. (See the individual brochures for these assemblies for detailed information and specifications, or call us for more information)

The Driver Control Module

This electronic module is the “intelligence” of the system. It receives a signal from the direction sensing electronics, which activates commutation of the pulser motor. The intelligence of the DCM knows the precise position of the DC motor’s armature and can thereby detect an obstruction in the poppet travel and lift the poppet to clear the obstruction. This is a unique and powerful capability that solenoid-type pulsers do not have. The DCM has several other intelligent capabilities. Because it knows the precise position of the motor and the poppet, it can auto-calibrate the entire assembly, compensating for even minuscule wear in the poppet and seat. It also senses when mud flow is active and initiates directional processes. It monitors and regulates the battery voltage to extend the useful life of a battery. It keeps records of critical operations of the system: the number of pulses it has sent, the hours the assembly has logged, the operating temperature of its environment, when the assembly was last serviced, and the servicing technician’s name.

The Pulser Driver Motor

This customized DC motor is the “heart” of the system. It responds to the Driver Control Module’s commands and drives the Linear Drive Assembly causing a pulse to be transmitted. This powerful, high-torque motor is rugged enough to stand up to

the harsh and demanding conditions that are found down hole. In addition, its on-board sensors provide feedback that the DCM uses to monitor the motor’s functions. Through our on-going Research and Development program, we have customized this motor to greatly extend its serviceable life.

Linear Driver Assembly

This is the “business” end of the Pulser Driver Assembly. An integral, powerful ball screw produces the driving force that opens and closes the servo poppet. The entire assembly is made from stainless and hardened and polished carbon steels, giving it the strength and abrasion resistance needed to withstand the severe down-hole environment. Working in conjunction with the DC motor, the ball screw produces poppet push-pull forces of up to 150 pounds—10 times that of a conventional solenoid spring. This ensures positive and precise opening and closing of the servo poppet and reliable pulse transmission. Our continuous re-evaluation of our components led to modifications that doubled the life of this assembly. And a new linear driver assembly in development will significantly improve operating life expectancy.

Other System Components

Pick up a brochure on the individual assemblies for detailed information and specifications: DCM, Pulser Driver Motor and Linear Drive Assembly, or call us for additional information.



The Leader in Innovative Drilling Solutions

7000 Railway Street SE
Calgary, AB
Canada T2H 3A8

Office: 403.243.2331
Fax: 403.243.2563

E-mail: sales@newsco.ca
www.newsco.ca

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