

PUMP DOWN MONITORING SYSTEM

GENERAL DESCRIPTION

This system is designed to improve safety, efficiency and reduce the occurrences of pumping tools off the end of the cable during wireline pump down operations. This is accomplished by improving communications between the wireline operator and the pump truck operator.

Real time depth, speed, and tension information is displayed at the pump truck. This allows the pump truck operator to see how fast the tool is moving, the depth of the tool, and how much tension is on the wireline without relying on the wireline crew to provide this information verbally.

Well head or pump truck pressure is also displayed real time in the wireline unit. This gives the wireline operator a warning when pressure is applied and helps them see when the pumper is pumping and how fast.

A noise cancelling hands free intercom system is included that is designed to work in high noise environments. This will improve verbal communications between the two operators.

Pump Down System BenchMark Wireline



SYSTEM DESCRIPTION

The system is comprised of three sets of equipment.

The first set is the equipment mounted in the wireline unit and consists of the depth and tension measuring equipment, including the hoist panel, the pump down display power module, the intercom panel, the pressure display panel, and the cable spools.

The second set is the equipment mounted near the pump truck. It includes the pump down display monitor, the intercom headset and the cable.

The third set is the equipment mounted near the well head or pump press line. It includes the pressure transducers and the cables.

An upcoming feature will be the ability to send a Cable Head Tension signal from SDS Warrior through the BenchMark panel to the remote display at the pump truck crew so the pump crew can monitor CHT in real time.

This will require that a cable head tension sub be installed in the string.



PUMP DOWN DATA DISPLAY MONITOR

Displays in real-time Depth, Speed, Tension and cable head Tension

- Wired for ballistically safe operations
- Water proof for outdoor operations
- Sunlight viewable display
- Signal, power, and intercom signal all run together in one cable
- Connects directly to any BenchMark panel to an existing serial port



PRESSURE DISPLAY SYSTEM

Displays and records up to 2 surface pressure readings simultaneously in real-time

- Pressure transducers are intrinsically safe for use on or near the well head or lubricator
- Comes with transducers, cables and spools 10K or 15K psi transducers with 1/4" or 1/2" NPT threads

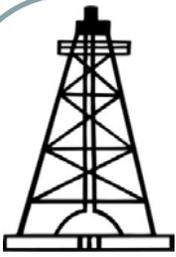


INTERCOM SYSTEM

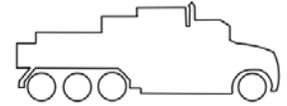
Intercom System provides hands-free communications in high noise environments

- Wired for ballistically safe operations
- Hands free operation to increase safety and efficiency
- DC powered to be able to operate when truck electrical generator is shutdown
- Can be installed under hard hat
- Noise cancellation technology in headphones eliminates most background noise

BenchMark Wireline Pump Down System



Rig



Pump Truck

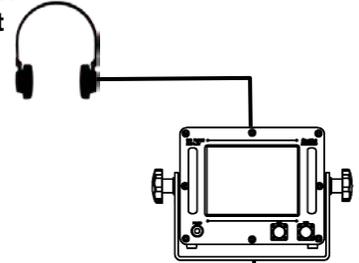
Intercom Speaker with Built-in Microphone

Noise Cancelling Headphones with Boom or Throat Microphone

Tension Transducer



Tension Transducer



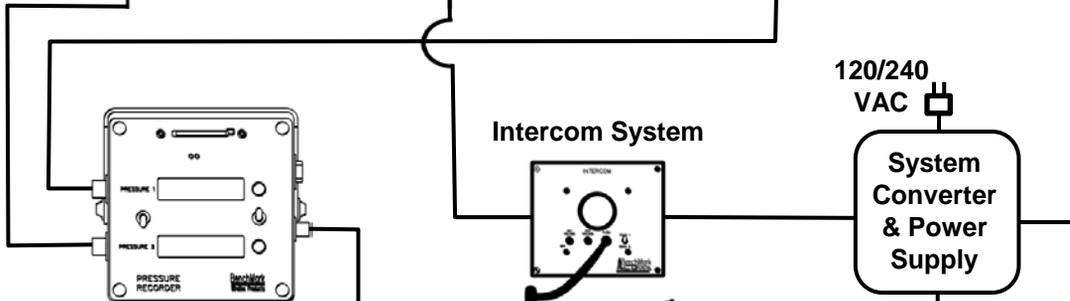
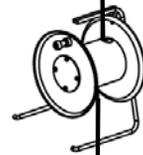
**Data Display Monitor
Touchscreen
Waterproof**



Cable Spools



Cable Spools



Standalone Pressure Monitor - Optional -

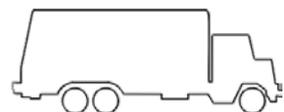
Intercom System

120/240 VAC

System Converter & Power Supply

Logging System

Pump Down System Connects to Any BenchMark Display Panel and Measuring Head



Logging Truck