

WELLPULSESM

Real-time Pressure Monitoring and Diagnostic Platform

Application

- Real-time offset pressure monitoring
- Diagnostic Fracture Injection Tests (DFITs)
- Interference testing

Benefits

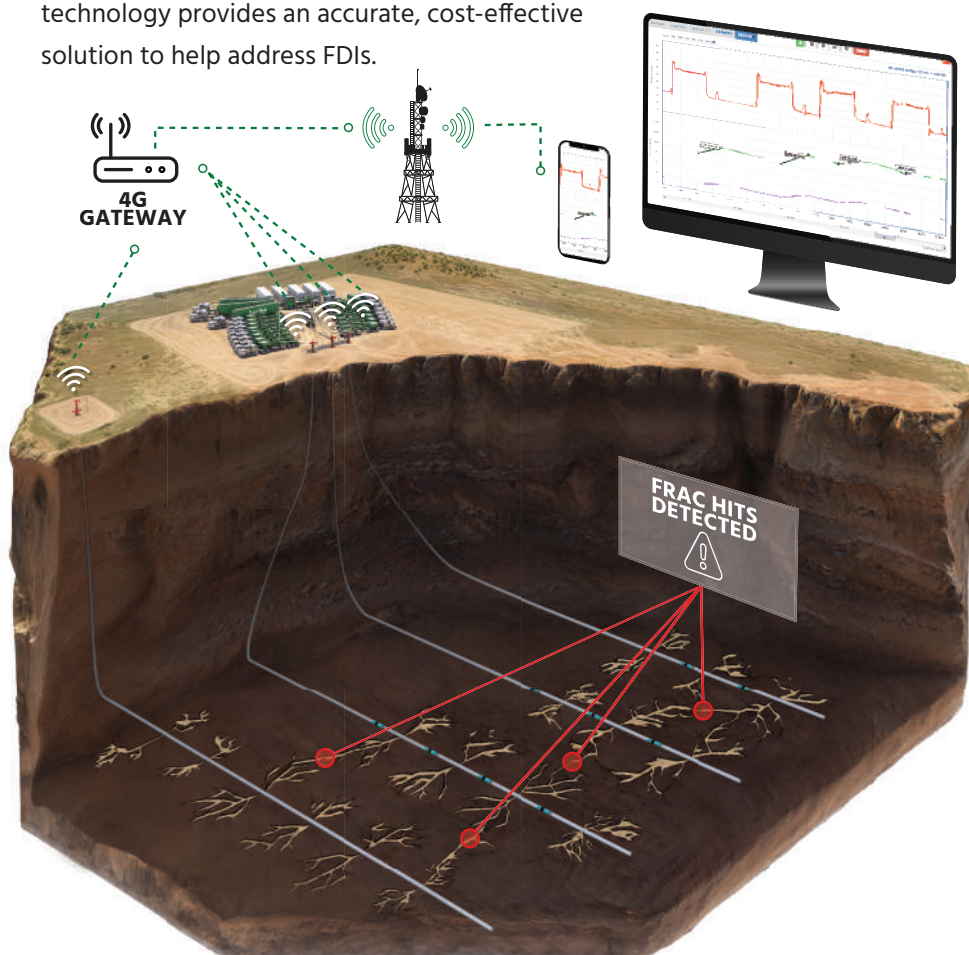
- Uses reliable, real-time data for rapid interpretation
- Provides insights to optimize well spacing and completion designs
- Mitigates the risks and consequent costs of production damage to co-completed or parent/child wells
- Enables real-time data viewing, interaction, and downloading without any disruptions
- Facilitates quick deployment and simple installation with minimum surface footprint

Features

- Wheatstone bridge wireless pressure sensor with < 0.02 psi resolution
- One-second sampling frequency
- Seamlessly integrated, time-synchronized data, regardless of well location
- Cloud-based interactive platform with built-in analytics
- Online streaming of well data directly to your preferred mobile device or third-party platform/software
- Customizable alarms and notifications

The WellPulse offset pressure-monitoring system provides instant detection and immediate alerts of fracture-driven interactions (FDIs) with offset wells. FDIs occur frequently between wells in close proximity, resulting from the complex interactions between stimulated fractures, natural fractures, and the reservoir matrix in unconventional reservoirs. These events are expressed as pressure responses in adjacent wells. FDIs can significantly alter hydrocarbon production, which can lead to substantial deviations from the projected decline rates in co-completed or parent/child wells. Moreover, they can cause mechanical damage to production equipment in adjacent wells.

The WellPulse system wirelessly transmits time-synchronized pressure data from offset wells – gathered using a surface-mounted sensor – to the data van or any remote PC, tablet or mobile device. This enables the system to simplify data acquisition and analysis to inform smart, data-driven decisions in real time. As infill field development intensifies and operators are under greater pressure to optimize fracturing operations and maximize hydrocarbon recovery, identifying and diagnosing FDIs becomes increasingly important. WellPulse technology provides an accurate, cost-effective solution to help address FDIs.



WELLPULSE TECHNICAL SPECIFICATIONS

Resolution	< 0.02 psi
Accuracy	+/- 0.05% full sale
Sensor Ranges Available	5,000, 10,000 and 20,000 psi (lower ratings available upon request)
Operating Temperature	-40 to 176°F (-40 to 80°C)
Thermal Compensation	Yes
Time Synchronization	■ Real-time synchronization to Atomic Reference Clock ■ Correction for drift every five seconds
Sampling Frequency	One second to 18 hours (remotely configurable)
Connection	1/2-in. NPT connection (for 5,000 and 10,000 psi) 3/8-in. Autoclave connection (for 20,000 psi)
Battery (pressure sensor)	■ Proprietary lithium power module. ■ One to 10 years' battery life (depending on reporting frequency)
Battery (gateway)	■ Proprietary lithium power module ■ Solar-powered battery available
Onboard Memory Storage	Sensor capable of recording up to 85,000 samples for later retrieval once the connection has been re-established (24 hours at one-second sampling interval)
Data Aggregation	At sensor level before transmitting and uploading to the Cloud
Data Transmission	■ Wireless to the Edge device (gateway) ■ Cellular or satellite from the Edge device to the Cloud

