

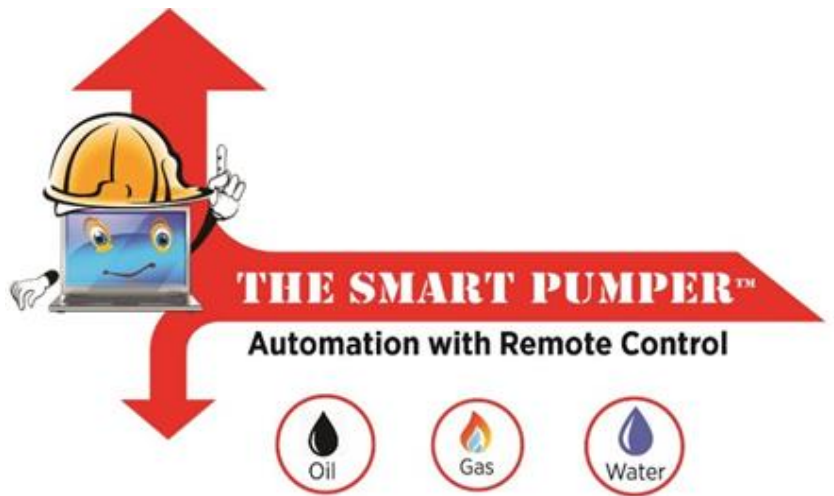
Automation and AI for Production Optimization

The Smart Pumper is a Production Optimization Platform. It has patented precision pump automation that controls both artificial lift and chemical injection at the same time.

It learns reservoir inflow potential and commands pump speed to match inflow in real time to maximize production while maintaining a selected fluid level above the pump providing a baseline for further analytics such as pump efficiency and more.

Smart Pumper connects all components in the field to automate all processes and provides field wide intelligence to optimize operations, reduces lift cost and HSE risk.

Smart Pumper is AI for Artificial Lift.



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GAIN INSIGHT FOR SMARTER DECISIONS



While Smart Pumper is controlling a variable frequency device (VFD/VSD) to manage pump speed, it simultaneously controls other devices such as chemical pumps to harmonize injection rates with the artificial lift output in real time. *Never waste a gallon of chemicals again.*

Smart Pumper data logs and monitors all aspects in the field providing warnings and fault conditions covering all conditions that are set up.

It is the AI in a Digital Oil Field you can create by using the universal Smart Pumper Platform.

- Extends Pump Run Time
- Predict End of Pump Life
- Patented Pump Optimization Software
- Diagnose Parted Rods in Minutes
- Diagnose a Hole in Tubing in Hours
- Defines Electrical Issues
- Helps Direct Field Maintenance
- Renders data and control features into a visual interface

USEFUL DATA CONTRIBUTES TO CORE KNOWLEDGE

Data analysis and acting upon it is key to optimizing operations. Smart Pumper data is accessible to users to help them understand in real time the fundamentals of their operation to compress down time with real-time decisions to optimize the performance of their business units.

Automation Based on Fluid Level to Target.



- Conduct Remote Build-up Tests
- Change Chemical Injection Rates
- Quantifies Chemical Usage
- Quantifies Tank Levels
- Meters Flow
- Quantifies Daily, Monthly & Cum
- Provides Theoretical Pump Rates
- Provides Pump Efficiencies
- Calculates Run Time
- Provides Data for Pump Sizing

The Smart Pumper helps you stay on top of your assets from anywhere to check and insure your operating within predetermined parameters. Users can respond to alarms and send commands remotely via a tablet, cellphone or other network device authorized for use.

A PROVEN TECHNOLOGY

Since 2008, Smart Pumper Automation technology platform has helped others increase their daily production and lower lift cost. To make the case, a National Oil Company set out to compare Smart Pumper to other systems offered by “the majors.” They removed existing well optimization systems and replaced them with Smart Pumper Pump Automation enclosures. Within minutes of deployment they could remotely monitor and control their wells. By selecting “Auto Pump Mode” the Smart Pumper algorithm matched well inflow perfectly to produce more from each well. Their SPE paper reported that they measured incremental increases in production that range from 18% to 57% more than the others with a similar Capex saving on top of production optimization.

IOT

Smart Pumper is an internet of things device with 6 forms of communication built-into the PLC. Options include 4G/LTE, radio- 900-Mhrtz and 802.11, Modbus, Ethernet and RS 232 and can be connected to other networks and frequencies.

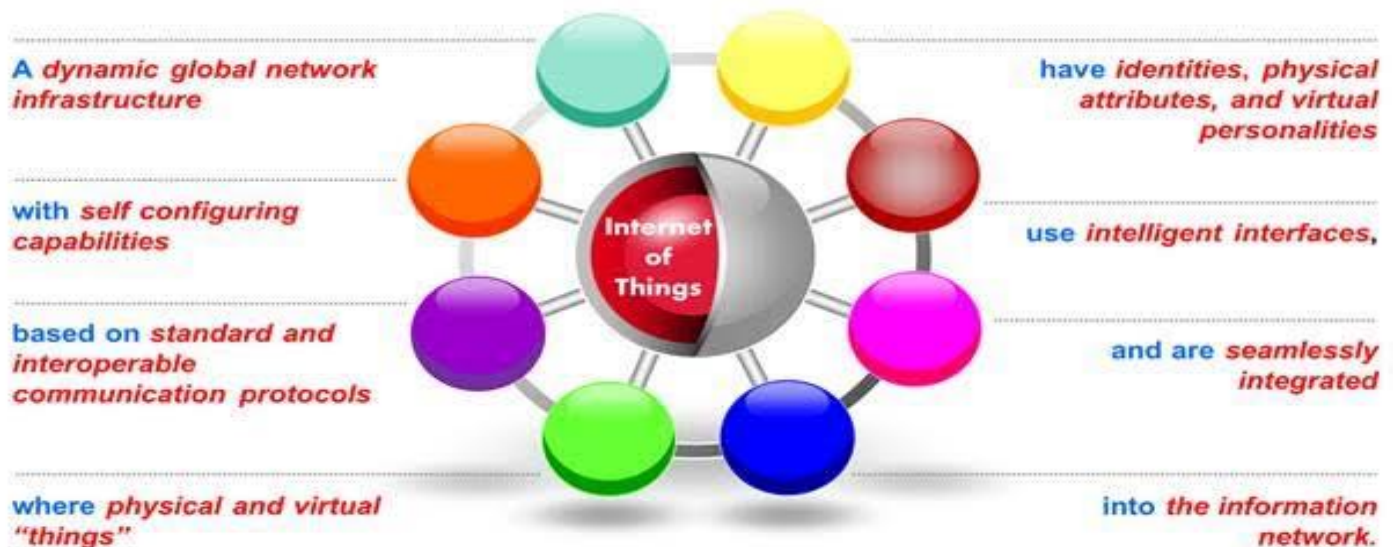
ENHANCE LIFT PERFORMANCE THROUGHOUT THE WELL LIFE

Change is constant in every well.

Smart Pumper reacts to this constant change adjusting to it in real time. Over time, Smart Pumper data will enable you to see and determine things like a loss of fluid in-flow due to near wellbore permeability issues. It will help you recognize flowline issues, like a paraffin build up or potential leaks and other operational issues.

With a capacity to store years of sensor data, the Smart Pumper database server software collect and stores data, in accordance with your analytical needs. This data will not only help to optimize your production today, it will also help you proactively transition to alternate lift methods as you respond to changing reservoir conditions. In other words, the Smart Pumper platform is for the newly completed flowing well, for the well that needs to be put on some form of artificial lift for the first time and can transition to any form of artificial lift.

With years of experience and expertise, our Integration Team and full-field optimization system will help you monitor performance and recognize current and future improvement opportunities across all reservoirs, wells, surface equipment, pipelines, tank batteries, EOR projects, and managing water resources.



ASSET OPTIMIZATION IS IN YOUR HANDS



Smart Pumper will help your team identify and prioritize production maintenance issues while it optimizes production from your pumping wells. Freeing up time for your production engineers to engage in other planning opportunities across your asset base.

The Smart Pumper software integrates data from real-time instruments and sensors across your asset base into a single platform, allowing live asset-production tracking, full automation of daily engineering tasks, and continuous optimization all the time.

EXAMPLES OF SMART PUMPER ENCLOSURE PACKAGES

Designed for specific purpose and horsepower requirements, the turnkey solutions provided by the Smart Pumper Team come in all sizes. Here are a few that range from 7.5HP to 650HP in use to optimize field operations.



CAPABILITIES

Well Types	Well Optimization	Monitor and Control	Field Service Management
Flowing	Yes	Yes	Yes
Rod Lift	Yes	Yes	Yes
Electric Submersible Pump	Yes	Yes	Yes
Progressing Cavity Pump	Yes	Yes	Yes
Hydraulic Lift	Yes	Yes	Yes
Tower Pumps	Yes	Yes	Yes
Gas/Water Injection	Yes	Yes	Yes
Controls Most VFD/VSD Types	Controls Chemical Pumps	Controls Relays and Proportional Valves	Supports all Meter and Sensor Types