Connect, Protect and Optimize
From Site to Authorized Devices

Proudly Built In The USA

Smart Pumper™

GENERAL DISCUSSION

• A Plug and Play Device with Multiple Applications
  Water Industry (MUD Districts)
  Oil and Gas Industry
  Marine
  Other(s)

• Easy to Use Interface providing user control, management tools, and valuable site Data for analytics

• How the Patented Fluid Level Automation Works

• Case Studies

• Conclusion

• Testimonials
1. PLC with Automation and SCADA on Steroids!

2. Controls Any VFD and a Series of Other Devices

3. Provides Remote Access to Authorized Users from Any Device

4. Data Log (100+ Points) Reports, Notifications and Analytic Road Map
AUTOMATES REMOTE OPERATIONS AND DELIVERS CONTROL TO YOU

- Produce More efficiently and Reduce Op-Ex
- Reduce Health, Safety and Environmental Risks
- Six (6) forms of Communication "Built-In"
- Interface and Data Support Provided
- Controls Variable Frequency Drive (VFD’s)
- For all AC and DC Motors
- Remotely adjust Production Parameters
- Troubleshoot Operational & Mechanical Events and Prevents Catastrophic Failures
- Monitor & Control Tanks, Compressors, Flowlines and other aspects of your operation
- Controls Artificial Lift Devices and at the same time Controls Chemical Injection Pumps and Gathers all of your Meter and Sensor Data

WITHIN MINUTES OF DEPLOYMENT YOU CAN MANAGE YOUR ASSET(S) FROM ANYWHERE
Smart Pumper™ is a powerful hybrid technology PLC + SCADA and Much More...

It has 6 forms of Communication “Built-In” including Ethernet, Modbus, RS232, 4G, 900 MHz and 802.11 to quickly deliver multi object control an data to your desktop within minutes of deployment. The Integration team delivers all the pieces and parts needed – soup to nuts to “Turns-On and Automate” your sites world-wide and provide user interface training, back room support and field service.

In this Solar Powered Example System controls adjacent ESP, Transfer Pump Station, Meters flow and data logs everything including Reservoir Level. Has 2 week battery back-up.
Smart Pumper™

REMTELY CONTROL WATER WELLS (ESPs), METER FLOW, MONITOR WATER QUALITY AND OTHER OPERATIONAL ASPECTS

University Of West Indies monitoring and data logging aquifer levels, water quality, and radon gas levels for research.

WASA – Water and Sewer Authority

ESP (50HP shown) used to control pump at remote water well and monitor nearby water facility
FLOWING WELLS WITH CHEMICAL INJECTION
Control Proportional Valves, Adjusts Chemical Pumps, and Other Motors
Data Log Tubing PSI, Temp, 3+ Meters, Casing PSI, Flow Line PSI, Chemical Tank Level, Oil and Water Tank Levels, and more
AUTOMATED CHEMICAL INJECTION CONTINUED

- Never Waste Chemicals (not even a gallon)
- Precisely maintains PPM to variable outputs
- Data Log (100 statistics: Meters, Chemical Usage and More)
- Tank Level low warning notifies Supplier and End User that more chemicals are needed for each specific tank

Remotely Control Injection Rates

a. **Manually** User sets GPM on each Chemical Pump through interface.

b. **Manually with VFD** User tells Smart Pumper™ to set VFD at a manual speed based on user’s decision and then, Smart Pumper automatically resets injection pump percentage to match changes.

c. **In Automation Mode “Fluid Level Control with VFD”** Smart Pumper™ tells VFD what speed to run based on level control automation and simultaneously changes injection pumps percentage to keep PPM balanced with output
Automated Chemical Injection and Control

- Controlling two chemical pumps in real time to maintain proper chemical balance in harmony with any Artificial Lift Device(s)
- Data logging Meter(s) and Tank Level for analysis plus and reporting
- Email and text warnings, faults and product requests
Automate Salt Water Disposal Systems

“For the Safest and Smoothest Operation”

Eagle Ford Disposal Site

Automated Salt Water Disposal Site

Smart Pumper™
Will keep the fluid level in the tanks at a user defined level
System controls disposal pump speed to match tank inflow from water sources
Automated Offtake(s) – Pump response to increased potential in Real Time.
• Know when a well responds
• Regulate Injection Valves
• Set HSE conditions
• Warnings and Faults
• Monitor and Control
  - Injection Pumps
  - Chemical Injection
  - Injection Pressures
  - Flowline Pressures
  - Well Bore Fluid Levels
  - Tank Levels
  - Meters
  - Gas Detection
• And more…
PUMP JACKS

Retrofit existing Pump Jacks with Smart Pumper™ to control pump jacks that already have a VFD. Or, let us provide you with an Enclosure and VFD that you can control with a Smart Pumper.

Check Your AFE...
In many cases the Smart Pumper Automation Package with VFD will cost less than the electric control panel that you have budgeted for.
PROGRESSIVE CAVITY PUMP SYSTEMS

**Smart Pumper™**
Will protect and extend your PCP pump life while it optimizes production through its patented precision pump control

Direct Drive Head units w/ Smart Pumper™ automation packages

*Photo Courtesy of Direct Drive Head, Inc.*

www.DirectDriveHead.com
Two Tower Pumps that use Permanent Magnet Motors lift rod string to pump and are control by Smart Pumper using a German VFD.

Automation and the Control Cabinet provide by the Smart Pumper Team provides operational data and remote control to the customer.
Smart Pumper™

HYDRAULIC TOWER PUMP SYSTEMS

Hydraulic Tower Pumps
Onshore and Offshore Lifting rod strings to pump

Smart Pumper Team Procured and Installed Hydraulic Pumps and Activated Network providing customer with remote Control & Monitoring capability through the Smart Pumper Platform. Manages strokes per minute based on fluid level in well and Monitors Sensors

New Horizon Exploration Trinidad

Trinity Exploration Atlantic off Galeota
PERMANENT MAGNET MOTORS

Displayed is a permanent magnet motor drive-head for PCP pumps and Smart Pumper™ Automation is shown in a control cabinet.
Smart Pumper™

GAS LIFT / COMPRESSOR MONITORING

Smart Pumper™ Automation
Monitors gas compressor and notifies the operator when they start to “buy” make-up gas.

Additionally monitors and notifies the operator of the running status, tank levels, pressures and other relevant information.

Photo Courtesy of Harvest Petroleum
Smart Pumper™

JET PUMPS ON TELCEL NETWORK IN MEXICO

Smart Pumper™ remotely
• controls the variable drive
• regulate output
• meter (5) volumes
• measure tanks
• record pressures
• respond to fault conditions
PLUNGER LIFT & PLUNGER ASSISTED GAS LIFT

**Smart Pumper™**

**Plunger Lift Automation**

**Smart Pumper™** can remotely:
- Access and control
- Record plunger arrival
- Monitor Pressures
- Record data
- Respond to warning and fault conditions
- Control Gas injection for gas lift assisted control
- Control chemical injection
INTERFACE PROVIDED TO MANAGE ASSETS

*Your Server *Your Security *Your Defined Users
Smart Pumper™

DEFINABLE INPUTS - DEFINABLE ACTIONS

Customizable Remote Control Status Screen

- Control VFD / Primary Pump Speed
- Control Multiple Chemical Pumps
- Set Multiple Condition/Responses

5-Meter Measurements

- Pump Depth
- Pumping Data
- Target Level
- Pump Rate
- Pump Rate 30 Days Avg
- Oil Current Rate
- Water Current Rate
- Gas Current Rate

- Production Statistics
  - Oil Current 24 Hr
  - Gas Current 24 Hr
  - Gas Oil Ratio

- Meters
  - Water
  - Flow #2
  - Flow #3

- Definable Inputs
- Definable Actions

5-Meter Measurements
- Oil
- Gas
- Water

- Smart Pumper™

21
Remotely set and control chemical pumps through the interface for precision Chemical Injection based on artificial lift output (or other basis) and record usage.

**Smart Pumper™**

**CHEMICAL PUMP INPUT SCREEN**

- **Rate / Day**
- **5 Operational Options**

- Current Flow Rate
- Current 24 Hr. Usage
- Last 24 Hr. Usage
- Current Month Usage
- Last Month Usage
- Cumulative Usage
- Cumulative Start Date
Definable Applications
Detailed Statistics

- Current Flow Rate
- Current 24 Hour Usage
- Last 24 Hour Usage
- Current Month Usage
- Last Month Usage
- Cumulative Usage
- Cumulative Start Date

Create Reports

- Graphs
- Excel and Tables
Smart Pumper™

PATENTED PUMP METHOD

Precision Pump Control based on real time fluid level to the specific target you want to achieve in specified time. (Patent No. US 8,684,078 B2)
Proven to Increase Production 18-57% and Reduce Lift Cost. (see SPE Paper - 157717-PP)

User requested a “Pressure Build-Up Test”
Shows Fluid Level Rising

Smart Pumper Level Control to Target
Smart Pumper™

FIELD STUDY

Compared performance against other systems
SPE Paper -157717-PP

Results

1. Reduced Cap-Ex by 50%
2. Proven to increase production by 18% – 57%
3. Reduced Lift Cost
4. Reduced HSE Risk (Health Safety and Environmental)
5. Fast: Within minutes of deployment without a SCADA network infrastructure in place, the device provided remote control and access to 100 data points that could be accessed by management to perform analytics from anywhere.
6. Fast: Instantly provided a control room environment where none existed.
7. Fast: Interfaces with existing authorized devices including laptops, tablets and I-phones.
8. Fast: Remote Control response time 5 second average for out of country to remote location anywhere in the world through secure APN/VPN tunnels.
Smart Pumper™

SUMMARY

Connects Quickly
Protects Immediately
Optimizes and Out Performs all others
Cost Savings Provides ROI and Unsurpassed Knowledge

- Easy to Deploy
- Control & Monitor Many Applications from Anywhere
- Application Software Provided
- Provides Meaningful Data for Analytical Work
- Reduces Health Safety and Environmental Risk
- Produces More for Less

www.SmartPumper.com
Phone: (281) 829-5559
Fax: (281) 578-0109
Web: www.SmartPumper.com
Email: info@SmartPumper.com
18000 Groeschke Road A-1
Houston, Texas  77084-5605
TESTIMONIALS

GAITHER PETROLEUM CORPORATION

EAST TEXAS HEAVY OIL CONQUERED BY SMART PUMPER

“We are a cost conscience Operator and have found the Smart Pumper™ Automation a perfect pumper and a powerful data acquisition tool. We use the Smart Pumper™ Automation on our pump jacks and progressive cavity pump operations. I have personally worked directly with the Smart Pumper™ Automation team and found them to be very responsive.”

- Doug Gaither, President

PRESIDIUM ENERGY

MICHIGAN WELLS PRODUCE BETTER WITH SMART PUMPER AUTOMATION

Traverse City Michigan

“There are over 10,000 Antrim Shale wells in Michigan that produce gas by de-watering. The problem most operators have is dry pumping while attempting to maintain a fluid level below the low pressure formation in order to produce gas. The best pump control device we found to manage our Electric Submersible Pumps (ESPs) and Drive Heads with PCP’s is the Smart Pumper™.”

- Mike Skipski, Production Manager
POCO MINERALS, LLC
LAST MINUTE REQUEST ON TIME DELIVERY
Peru Project
“We asked the Smart Pumper™ Technical Team in Houston to help us complete a specialized pump skid package that required automation and data logging for remote use in Peru. In one week, they not only completed the work order but did so in an over the top manner. We were blown away by their help and were extremely pleased.”
- Thomas Lacy

MERKAZ DRILLING, LLC
INSTANT DOWNHOLE RESULTS
“Extremely satisfied with the instant downhole results immediately after connecting wires from the sensors to the Smart Pumper. The system came completely pre programmed and all that was needed was a brief tutorial. It has been a huge improvement upgrade.”
- Josh Olenak, Owner