# Smart Jet-Lift System

## Optimize High-Volume Production with Intelligent, Real-Time Controls and Management

### Applications

- Centrifugal jet pumps
- Reciprocating jet pumps

### Features and Benefits

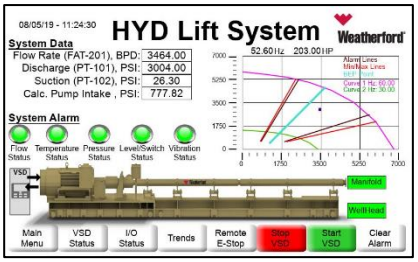
- Exclusive physics-based modeling calculates pump-intake pressure and decline rates
- Intuitive, SCADA-based interface enables onsite or remote-lift controls for injection rate, pressure, and vibration
- Integrated, real-time overview and lift-performance tornado curves provide trend analysis for pressure, flow rate, speed, and more
- Intelligent alerts provide worry-free monitoring for power-fluid cavitation, production cavitation, and more
- Continuous optimization maximizes productivity while protecting the reservoir from overdraw
- Placing all moving parts on the surface reduces repair downtime by 95% compared to an ESP with similar flow
- Integrated PID function allows discharge pressure control
- Configurable I/O interface allows for unique requirements
- PC interface software allows transfer of drive parameters to PC for storage and reference
- Control-panel versatility allows for any brand of VSD (Modbus registration required)

### Tool Description

The Weatherford smart jet-lift system elevates hydraulic jet lift to a precision science. With its intuitive visualization of actual pump performance along with intelligent alerts that help maintain productivity, this automation system is next-generation optimization intelligence superior jet-lift performance.

Monitored and managed through an existing SCADA system, the jet-pump automation system delivers trend analyses and real-time control over production parameters, including injection rates, pressures, and vibration management.

With the ability to operate onsite or via remote lift control, the system helps maintain productive operations through intelligent alerts for power-fluid cavitation, production cavitation, and more. Trend analyses for pressure, flow rate, speed, and temperature help to maintain maximum surface-pump productivity with minimal human input.




The Weatherford jet-lift automation system delivers trend analyses and real-time control over production parameters, including injection rates, pressures, and vibration management.

# Smart Jet-Lift System

## System Specifications

### Panel Enclosure

| | |
|---|---|
| Type | Class 1, Division 2 |
| Material | NEMA 4X, galvanized steel with powder coat |
| Dimensions | 15.8 in. (40.13 cm) x 17.12 in. (43.48 cm) x 10.88 in. (27.64 cm) |
| Mount | External side of VSD panels |

### Power Input

| | |
|---|---|
| Power supply | 24VDC |
| Est. consumption, standby | ~.400 A |
| Est. consumption, operation | 1.245 A |
| PLC | 340 mA |
| AI module | 35 mA |
| DO module | 30 mA |
| RTD module | 1.2 mA |
| HMI module | 700 mA |

### HMI

| | |
|---|---|
| eX707 | Glass design |
| Display | 7-in. TFT color,<br>800 x 480 pixel,<br>16M colors,<br>dimmable backlight LED |
| Projected capacitive touchscreen | True glass, multi-touch operation |
| Ethernet ports | 3, plus customer tie-in via Modbus TCP |
| USB ports | 2 |
| SD slot | 1 |
| Expansion modules | 2 plug-ins |

### CPU

| | |
|---|---|
| Productivity2000 | 1 |
| Ladder Memory | 50 MB |
| Display | 4x10 character, OLED |
| MicroSD card slot | 1 |
| Ethernet 10/100-T (RJ12) | 1 |
| RS-485 | 1 (3-pin terminal) |
| Micro-USB port | 1 |
| Operating temperature | 0° to 60°C (32° to 140°F) |
| Storage temperature | -20° to 70°C (-4° to 158°F) |

# Smart Jet-Lift System

## Programmable Logic Controller Specifications

### P2-04B

| | |
|---|---|
| Productivity2000 I/O BASE | 1 |
| 4-slot, DIN | Rail or flush mount |
| I/O modules | 4 |
| Operating temperature | 0° to 60°C (32° to 140°F) |
| Storage temperature | -20° to 70°C (-4° to 158°F) |

## System Input/Output Module Specifications

### Analog Input

| | |
|---|---|
| Productivity2000 | 1 |
| Current | 8-channel, 16-bit |
| Input current signal range | 0-20 mA |
| External power supply | 24VDC required |

### Temperature Input

| | |
|---|---|
| Productivity2000 | 1 |
| RTD | 6-channel, 16-bit resolution |
| Input RTDs | Pt100, Pt1000, JPt100, Cu10, Cu25 and Ni120 |

### Discrete Input

| | |
|---|---|
| Productivity2000 | 1 |
| Sourcing | 16-point, 12-24 VDC |
| Sinking/sourcing | 2 isolated common(s), 8 point(s) per common |

### Discrete Output

| | |
|---|---|
| Productivity2000 | 1 |
| Sourcing | 8-point, 24 VDC |
| Commons | 9, 1 point per common, 0.25A/point |
| Protection | Short-circuit and overload |