Weatherford®

CEO™ Four Plunger-Lift Controller

Weatherford's *CEO* Four plunger-lift controller is designed to meet remote requirements by using ultralow-power electronic technology. The *CEO* Four controller's design incorporates all the proven SCADA and remote-terminal-unit (RTU) functions of other wellsite intelligence products, making it the most complete and advanced plunger-lift controller available in today's marketplace. This state-of-the-art controller is designed with a programmed *on* cycle initiation calculation accounting for casing, tubing, and line pressures, as well as for annulus volume, fluid load, and tubing frictions. The *CEO* Four can also be used to monitor tank levels.

The *CEO* Four controller offers a broad range of control mechanisms: time-based, using system pressure inputs; pressure-based; single-, dual-, and triple-valve; and flow rate and differential pressure.

Applications

- Simple plunger-lift operations
- Advanced pressure-based plunger lift and intermittent control
- Complete plunger automation projects
- Stand-alone optimization
- Rod-pump optimization
- Soap-injection optimization

Features, Advantages and Benefits

- MODBUS communication protocol enables the controller to poll and centralize information from local smart peripherals, reducing the complexity and cost of wellsite configuration.
- A single radio retrieves all necessary information from the wellsite, reducing operating expenses.
- Simple controls and settings allow for easy configuration, minimizing the potential for operator error.
- Weatherford's patented casing-to-tubing differential-optimization routine maximizes well output and minimizes average casing pressure.
- Multiple on/off function allows the operator to control the well using multiple inputs and configurations to client preferences.

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Features, Advantages and Benefits (continued)

- Emergency shutdown enhances safety.
- Pressure-logger mode records and enables download of data from six analog inputs, maximizing the operator's ability to analyze and optimize the well.
- Single integrated package design withstands harsh environments, providing superior control from even remote locations.
- The *CEO* Four controller is able to interface with most host systems, using radio (licensed spread spectrum and Ethernet), satellite and cellular channels for communication that use industry-standard protocols.
- Menu-driven interface and local display provide on-location access.
- Optional password protection discourages improper use.
- AGA 3 and 8 calculation provides non-custody transfer flow measurement.
- Easy self-optimization feature calculates the casing pressure needed to ensure arrival, based on casing size, tubing size, flowline pressure, and load size.
- Controller supports Siemens model 1000 and ROS model 200 tank gauges.
- On-extension option for failed plunger arrivals ensures necessity of b-valve and avoids venting in case of plunger switch failure.
- Persistent pressure timers ensure that cycles occur based on consistent conditions and not on unstable values.

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Specifications

Analog Input Channels	
Number of channels	6 inputs (1 to 5V or 4 to 20 mA conversion)
Accuracy	0.1% of full scale after factory calibration
	Switched analog voltage to transmitter(s)
Input impedance	2 Meg ohm, 12-bit resolution

Digital Input Channels	
Number of channels	5 digital outputs
	3.3V open circuit
	165 mA short-circuit current
	Dry contact only, 1 K maximum

Digital Output Channels	
Number of channels	8 digital outputs (4 pulsed latch valves)
Rated output	15V maximum, open collection output
	500 mA continuous current
	2-amp pulsed current
	Switched battery voltage to end device (solenoid typical)

Communication Ports	
RS-232	Human-machine interface
RS-232	MODBUS communication
RS-485	MODBUS communication

Power Consumption	
Nominal	360 MW (30 mA at 12V)
Display active	550 MW

Onboard Memory	
Flash	8 MB, 512 K × 16
Static RAM (SRAM)	8 MB, 1 M × 8

Certifications

- The *CEO* Four is CSA certified for Class 2258-02, Process Control Equipment for Hazardous Locations, Class I, Division 2, Groups A, B, C, and D.
- The remote latch valve is CSA certified for Class I, Division 2.

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