



2000 Rod Pump Controller (RPC) Technical Specifications

2000 Rod Pump Controller (RPC) Features and Benefits Summary

Features	Benefits
Control	
Patented air balance control	Automatically optimizes and controls air cylinder pressure on air-balanced units.
Peak energy control functionality	Inhibits well operation during peak periods of high energy cost as determined by the operator.
Motor restart protection	Motor restart protection Prevents motor restart when condensation is present on motor windings.
Power fail recovery method	Inhibits selected load alarms following a loss of power to allow a well to pump down a high fluid level.
Programmable (auto-acting) I/O	Unique monitoring and control applications using analogs, meters, and discretes.
Multiple control methods	Point or quadrant, for lower right or upper left hand portions of the surface cards, and reverse pump-off.
Automatic idle time optimization	Improved determination of idle time adjusted for inflow based production.
Pump-up delay timer	Eliminates immediate pump-off due to incomplete pump fillage following well idle time.
Monitor only mode	Monitor dyno cards without regard for control set points or speed ranges. Ideal for dyno card generation with VFD controlled pumping system.
Works with all kinds of wells	Companies can standardize on one controller for heavy oil, sand, deviated holes, etc.
Analysis	
Gross fluid or inferred production calculations	Accurate estimates of total fluid production from shallow and deep wells without complex well site configuration.
Available ESP operating mode	Allows the RPC to monitor submersible pump controllers.
System load analysis	Host based detection of load cell drift on changing downhole conditions.
Cycle and run time buffers	Easy access to historical data at the well site or using the host software.
Dynamometer card buffers	Access to event cards (Full, Current, Shutdown, etc.) and several cards stored leading up to the event.
Expanded alarm features	Host based alarms (torque, stress, pump efficiency, prime mover size, unbalance, etc.).
New stored card types and associated alarms	Card Area Alarm; Excessive Card Areas; and Hi-Hi, Hi, Low-Low, and Low loads.
Alarm	
Extensive communications debugging capabilities	Capable of analyzing data at the well site to diagnose data transmission problems due to faulty radios, etc.



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System Configuration	
Improved well site configuration	Simple menu for configuration, data management, system diagnostics, and load cell calibration.
Upgradeable modular hardware design	Auxiliary I/O, communications, and local user interface options can be added in the field.
Flexible, expandable I/O	Three options available to allow the best match for individual well site applications.
Backward compatible parameter structure	Prevents incompatibility issues with older eP RPC equipment.
Basic three level password protection scheme	Provides security for access to critical RPC setup parameters and well control commands.
Optional enhanced graphic display and	Menu driven user interface for configuration and review of system data including dyno cards,
Available ESP operating mode	Allows the RPC to interface to submersible pump controllers.
Local graphic display	Provides readily understood messages relating to pump system conditions.
Digital rod load calibration	Operator no longer has to manually adjust potentiometers to calibrate the load sensor.
Automatic beam mounted load calibration	Simply enter the correct maximum and minimum loads, no complex multi-step program required.
Integrated "single package" design	Simplifies installation with all components in one unit.
Rugged hardware design	Manufactured to strict standards to ensure long life and reduced cost of ownership.
Sensor options	Position switch, continuous position sensor, polished rod load cell, and beam mounted sensor.

2000 Rod Pump Controller (RPC) Approvals

- FCC Part 15, Subpart B, Class A Digital Device
- EU EMC Directive 89/336/EEC
- CSA approved Industrial Control Equipment–Motor Controller–Miscellaneous

Expansion I/O Boards for the 2000 Rod Pump Controller (RPC)

Board Number	Analog Inputs	Digital Inputs	Digital Outputs	Analog Outputs
1	2	2	2	0
2	4	4	4	0
3	8	4	4*	0

* Can be configured as DI or DO



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ROD PUMP CONTROLLER	
Enclosure	NEMA 4X
Weight	Approximately 22 pounds
Input Voltage Range	120/240 Vac
Frequency	47 to 63 Hz
Relay Output	12 Vdc
Operating Temperature	-40° to +185°F (-40° to +85°C)
Printed Circuit Boards	Conformally coated to protect against moisture, H ₂ S, and salt air
Communication Protocol	Operator selectable, CAC 8500 native, Modbus™ RTU, or Modbus ASCII
TRANSIENT PROTECTION	
Overvoltage/Transient	Meets ANSI/IEEE C37.90.1-2989 protection specifications
Dynamometer Card Resolution	Samples and stores load and position data at 20 times-per-second for down-hole analysis
Pump-off or Reverse Pump-off Detection	Setpoint or quadrant method
Analog-to-Digital Conversion	Monolithic, successive approximation 12-bit A/D converter
POLISHED ROD LOAD CELL	
Class	Quantitative strain gauge
Range	0- to 30,000-lb. or 0- to 50,000-lb.
Maximum Error	±0.5%
Operating Temperature	-70° to +190°F (-55° to +88°C)