



US Drives Inc.

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AC Drive for Oil Field Applications

The Phoenix AC drive has been designed to solve the rugged demands of Oil Field Applications: Oil Field Production, Refinery, Drilling Rigs (Mud Pump, Drawworks, Rotary Table), and Pumping Stations (PCP-Progressive Cavity Pumps, ESP-Electro Submersible Pumps, Pumping Unit/Pumpjack, PD Pump or Conventional Mechanical Pumps).

Our Phoenix AC Drive with its unique DC Bus Follower circuit is the perfect product for these tough applications: Impact Loads, Eccentric, or Unstable Loads (like Beam Pump and Reciprocating Pumps) can cause the AC Motor to become a part-time generator unless the drive is specifically designed to prevent this condition from occurring (Over-Voltage Trips). Most competitive AC Drives are not designed to prevent this condition from occurring.

Standard Features:

- *Easy to Use, Simple Setup*
- *Wide Temperature Range for Tough Oil Industry Conditions*
- *Includes Application Specific Built-in Functions*
- *Works with all Induction Motors*
- *Over and Under Protection for Load Current*
- *"DC Bus Follower" eliminates Brake Chopper in Cyclic Loads*
- *Short Circuit and Ground Fault Protection*
- *Tolerate High Input Voltages*
- *Built in Line Voltage Surge Protection*
- *Motor Overload Protection, Meets NEC 430*
- *Built in RFI Noise Filter*
- *Power Dip Ride Through*
- *Overload Protection with Soft Stall*
- *Input and Output Single Phase Detection*
- *Momentary Power Failure Ride Through*
- *Dual Motor Map*
- *DC Injection Braking after a Controlled Stop*
- *Built-in Mechanical Brake Function with Torque Proving*
- *Torque Limits to Protect the Pump*
- *Works with all ESP Systems Regardless of Cable Length (with optional Sinewave Output Filter)*
- *Built-in DC Bus Follower (Dynamic Braking Resistors are not required for Pump Jack Oil Well Applications)*



THREE YEAR WARRANTY



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AC Drive Product Line Summary

Design Features	Phoenix DX			Phoenix EX			Phoenix DX Clean Power		
Drive Type	PWM - Sine Coded			PWM - Sine Coded			PWM - Sine Coded		
Control Method	Sensorless Vector			Closed Loop Vector			Sensorless Vector		
Input Rectification	6 Pulse (Standard) 12 Pulse (Optional)			6 Pulse (Standard) 12 Pulse (Optional)			18 Pulse		
Input Voltage +/- 10% Voltage +/- 2 Hz	200 to 250 3 Ph (1 Ph) 50/60 Hz	380 to 500 3 Ph (1 Ph) 50/60 Hz	525 to 600 3 Ph (1 Ph) 50/60 Hz	200 to 250 3 Ph 50/60 Hz	380 to 500 3 Ph 50/60 Hz	525 to 600 3 Ph 50/60 Hz	200 to 250 3 Ph 50/60 Hz	380 to 500 3 Ph 50/60 Hz	525 to 600 3 Ph 50/60 Hz
Horsepower Range	3 to 250 (125)	5 to 3000 (250)	5 to 3500 (250)	3 to 250	5 to 3000	5 to 3500	20 to 250	40 to 1000	40 to 1000
Output Frequency	0 to 600 Hz			0 to 600 Hz			0 to 600 Hz		
Speed Regulation	0.5% of Max Speed			0.01% of Max Speed with Encoder			0.5% of Max Speed		
Speed Range	50 to 1			To Zero Speed with Encoder			50 to 1		
Overload Capacity: -Normal Overload Capacity (VT) -High Overload Capacity (CT)	120% for 1 Minute 150% for 1 Minute			120% for 1 Minute 150% for 1 Minute			120% for 1 Minute 150% for 1 Minute		
Dynamic Braking	Optional - To 150% of Rated			Optional - To 150% of Rated			Optional - To 150% of Rated		
Regenerative Braking	Optional 100% Continuous 150% for 1 Minute			Optional 100% Continuous 150% for 1 Minute			Not Available		
Drive Features	<ul style="list-style-type: none"> -Local Operator Keypad (Remote Mountable) -English Language Display for Easy Programming -High Performance PID (Setpoint) Control -Adjustable Accel / Decel Control (to 3276 Sec) -8 Preset Speeds with 16 Accel / Decel Rates -Scan Timer for Customized Speed Profiles -Speed Increase / Decrease (MOP) Function -Programmable S Curve Accel / Decel Control -Ground Fault / Short Circuit Protection -Fault History Log & Maintenance Timers -Flycatcher (Start Into a Rotating Motor) -Critical Speed Rejection (3 Points) -Critical Power Ride Through (Approx 2 Sec) -Kw / Kw-Hr Metering -Coast to Rest, Ramp Stop, and/or DC Braking -Programmable Threshold Detectors -PLC Functions: AND, OR, NOT, Timers, +, -, x, ÷ 			<ul style="list-style-type: none"> -Torque or Speed Control -Auto Restart after Power Loss and/or Fault -Motor Overload Protection - Meets NEC430 -Adjustable Control Limit -Isolated Control Circuitry -Programmable V/Hz -Analog or Digital Speed Reference -2 Analog Inputs (-10V jto +10V or 4 to 20 ma) -2 Analog Outputs (0 to 10 VDC - Programmable) -8 Digital Inputs (Programmable) -2 Digital Outputs (Programmable) -Built in RS-232 Drive Programming Port -Free Drive Configuration Software -Password Protection -UL and cUL Listed -High Input Power Factor (>0.95) -Many, Many Other Features 					
Power Options	Input AC Line Disconnect Switch with Fuses Input AC Line Circuit Breaker Manual or Automatic Contactor Bypass Input and Output Line Reactors Input and Output Contactors Many Others								
Control Options	Communication Cards - RS-232/422/485, Modbus RTU, Metasys N2, Ethernet, Many Others Available Closed Loop Vector Control (Encoder Feedback) Card I/O Expansion Cards - Analog and Digital Encoder Feedback and Second Encoder Follower Card (Closed Loop Vector Drives Only) Process Input / Output Signal Isolation Card (4 to 20 ma or - 10 VDC to + 10 VDC) 115 VAC Digital Input Operator Interface Card Operator Devices: Manual Speed Pot, Hand/Off/Auto, Local/Remote, Auto/Manual Selection Pneumatic Signal Follower Card (0 to 15 PSI) Many Others								
Enclosures: - Nema 1 - Nema 12 - Nema 4 - Nema 3R	Standard Optional Optional Optional			Standard Optional Optional Optional			Standard Optional Optional Optional		
Surge Suppression	Line Transients to 6000 Volts - IEEE C62.41-1991 Category B								
Noise Immunity	Showering Arc to 2000 Volts Peak - EN50082-1,2								
Ambient Temperature	-10°C to 50°C (14°F to 122°F)			-10°C to 50°C (14°F to 122°F)			-10°C to 50°C (14°F to 122°F)		
Input RFI Filter	Standard			Standard			Standard		