



US Drives Inc.
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Phoenix DS 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

MADE IN USA



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AC DRIVE PRODUCT LINE SUMMARY

DESIGN FEATURES	PHOENIX DS			PHOENIX ES			PHOENIX DS 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 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	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 Capability: - 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 (can be mounted remotely) - 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) - Control 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 References - 2 Analog Inputs (-10V to +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	<ul style="list-style-type: none"> - 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	<ul style="list-style-type: none"> - Communication Cards - RS-232/422/485, Modbus RTU, Ethernet, Many Others Available - Closed Loop Vector Control (Encoder Feedback) Card - I/O Expansion Card - Analog and Digital - Encoder Feedback and Second Encoder Follower Card (Closed Loop Vector Drives Only) - Process Input / Output Signal Isolation Cards (4 to 20 ma or - 10VDC to + 10VDC) - 115 VAC Operator (Digital Input) Interface Card - Operator Devices: Manual Speed Pot, Hand/Off/Auto, Local/Remote, Auto/Manual Switches - Many Others 								
Enclosures: - Nema 1 - Nema 12 - Nema 4 / 4X - Nema 3R	Standard Optional Optional Optional		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		

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