



US Drives, Inc.
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P.O. Box 281
Niagara Falls, NY 14304-0281
Tel: (716) 731-1606
Visit us at www.usdrivesinc.com

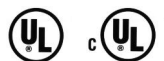
Phoenix DS Sensorless AC Vector Drive



3 HP to 3500 HP

Standard Features:

- * Sensorless AC Vector Control for Precise Control of Motor Speed and Torque
- * Highest Starting Torque - Smart Power Start Maximizes Motor Torque Per Ampere
- * Continuous Automatic Tuning – Provides Optimal Performance Under All Conditions
- * No Need to Perform Auto-tune Routine or Disconnect the Motor from the Load or During Drive Start-Up
- * Operator Keypad with English Language Display – 2 Line, 32 Character. Easily Display any parameter including Motor Speed, Motor Current, Motor Voltage, Kw and kWh. User Programmable Parameter Scaling and Formatting – Display "Real World" Values – GPM, CFM, PSI
- * Operator Keypad Includes Speed Increase/Decrease Keys, Start/Stop, Forward/Reverse and Fault Reset Keys also LED's for "Current Limit", "Fwd/Rev", "Run" and "Fault."
- * 50°C Ambient Temperature Rating (Nema 1 Enclosed Drives)
- * Tolerates High Input AC Line Voltages – 250/500/600 VAC +10% (240/480/575 VAC Input)
- * Ground Fault and Line to Line Short Circuit Protection
- * Programmable Speed Sensitive Motor Overload Protection to Comply with UL 508C Sections 43.3, 43.4 and 43.5
- * Power Loss Ride Through
- * High Performance PID Control Loop (Full Setpoint Control or Trim Control)
- * Sleep Mode PID
- * Pump Underload and Overload Protection and Load Recovery
- * Pump Backspin Control
- * Speed Increase / Decrease (MOP) Function
- * S Curve Accel/Decel Control
- * User Programmable Auto-Restart Function
- * Bi-Directional Flycatcher (Start Into a Rotating Motor) – No Inertia Limits
- * Built In Kw / kWh Metering and Total Cost of Power Calculator
- * Programmable Time Based Function Generator and Programmable Threshold Detectors
- * Programmable time delay and logic functions (AND, OR, NOR) of bit parameters, digital inputs and outputs
- * Adding, subtracting, multiplying, dividing, ramping, limiting and/or filtering functions of parameters and analog inputs and outputs
- * Run Time and Power on Time Countdown Timers with Alarms plus Run Time and Power on Time Totalizers
- * Critical Speed Rejection, 3 Bands – Individually Programmable Bandwidth
- * Auto logging Fault History - Last 10 Faults Saved in Order of Occurrence
- * 8 Digital Inputs, 24 VDC (7 Programmable Inputs and 1 Fixed Stop/Enable Input)
- * 2 Programmable Digital Outputs – Two Form C Dry Contacts rated 5 Amps at 115VAC
- * 2 Programmable Analog Input Signals, -10 VDC to +10 VDC or 4 to 20 ma
- * 2 Programmable Analog Output Signals, -10 VDC to +10 VDC
- * DC Braking
- * Fixed or Variable Carrier Frequency
- * Much, Much, More..



THREE YEAR WARRANTY

MADE IN USA



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ENGINEERING SPECIFICATIONS

CONTROL

Control Method: Sine coded PWM with programmable carrier.
 Space Vector control.
Output Voltage: 0 to rated voltage
Output Frequency Range: 0 to 600 Hz.
Frequency accuracy: Analog reference: 0.1% of max frequency.
 Digital reference: 0.01% of max frequency.
Frequency resolution: Analog reference: 0.06Hz at 60Hz.
 Digital reference: 0.001Hz at 60Hz.
Accel / Decel: Adjustable 0.1 to 3276 sec.
Drive Overload: High Overload Capacity Drives:
 150% of drive rated output for one (1) minute.
 Normal Overload Capacity Drives:
 120% of drive rated output for one (1) minute.
Inverse Time Overload: Programmable for class 10, 20 and 30 protection
 with speed sensitive protection to comply with
 N.E.C. Article 430.
Current limit: Proactive current limit programmable in % of
 motor rated current.
Braking torque: 5 to 20% without modification. Braking modules
 available for added braking to 150%

ELECTRICAL

Rated Input Voltage: 200-250Vac, 380-500Vac, 500-600Vac
 -10% of minimum, +10% of maximum.
Rated Input Frequency: 48 to 63HZ
Number of Phases: 3
Displacement Power Factor: .95 or greater
Efficiency: 97% or greater at rated current

ENVIRONMENTAL

Ambient Temperature: -10°C to 50°C (14°F to 122°F)
 without derating.
Storage Temperature: -40°C to 70°C (-40°F to 158°F)
Altitude: Sea level to 3300 Feet [1000m]
 without derating.
Humidity: 95% relative humidity non-
 condensing.
Vibration: 9.8m/sec² (1.0G) peak.
Surge Protection: Line Transients to 6000V
 IEEE C62.41-1991 Category B
 Showering Arc - 2000V Peak
 EN50082 - 1, 2
Input R.F.I Filter: Standard on all models.

AVAILABLE OPTIONS

- Signal Conditioners/Isolators
- Communications Cards: RS-232/422/485, Modbus RTU
- Analog Signal Conditioner/Isolation Cards
- Digital Input/Output Expansion/Conditioning Cards
- Hand/Off Auto, Local/Remote, Auto/Manual Selection
- Many Additional Modifications Available

PHYSICAL ATTRIBUTES

Mounting: Wall Mount: Through hole or panel mount.
Nema Rating: Type 1 (IP20) as Standard
 Type 12 (IP54) Optional
 Type 4 (IP65) Optional
Construction: Steel Enclosure (Reduces E.M.I.)

Phoenix DS AC Drive Dimensions ¹								
Input Voltage	Motor HP ²		Nema 1 VFD Only	Nema 12 VFD Only	Nema 1 w Disconnect & Fuses	Nema 12 w Disconnect & Fuses	Nema 1 with Bypass	Nema 12 with Bypass
	High Overload Capacity ³ (CT)	Normal Overload Capacity ⁴ (VT)						
200 - 250 VAC (208/230/240)	3 - 7.5	5 - 10	13.05"x9.0"x10.9"	13.05"x9.0"x10.9"	20.74"x9.0"x10.9"	20.74"x9.0"x10.9"	34.02"x9.0"x10.9"	34.02"x9.0"x10.9"
	10 - 20	15 - 20	13.05"x9.0"x10.9"	13.05"x9.0"x10.9"	20.74"x9.0"x10.9"	20.74"x9.0"x10.9"	34.02"x9.0"x10.9"	34.02"x9.0"x10.9"
	25 - 30	25 - 30	25"x11.6"x11.1"	25"x11.6"x11.1"	25"x11.6"x11.1"	25"x11.6"x11.1"	38.4"x11.6"x11.1"	38.4"x11.6"x11.1"
	40 - 100	40 - 100	32.5"x20.1"x13.5"	32.5"x20.1"x13.5"	32.5"x20.1"x13.5"	32.5"x20.1"x13.5"	65"x20.1"x13.5"	60"x36"x16"
380 - 500 VAC (380/400/415/480)	125 - 250	125 - 250	44.2"x31.1"x16.8"	72"x36"x23.5"	72"x31.5"x18"	72"x36"x23.5"	72"x72"x23.5"	72"x72"x23.5"
	5 - 15	7.5 - 20	13.05"x9.0"x10.9"	13.05"x9.0"x10.9"	20.74"x9.0"x10.9"	20.74"x9.0"x10.9"	34.02"x9.0"x10.9"	34.02"x9.0"x10.9"
	20 - 40	25 - 40	13.05"x9.0"x10.9"	13.05"x9.0"x10.9"	20.74"x9.0"x10.9"	20.74"x9.0"x10.9"	34.02"x9.0"x10.9"	34.02"x9.0"x10.9"
	50 - 60	50 - 60	25"x11.6"x11.1"	25"x11.6"x11.1"	25"x11.6"x11.1"	25"x11.6"x11.1"	38.4"x11.6"x11.1"	38.4"x11.6"x11.1"
525 - 600 VAC (525/575/600)	75 - 200	75 - 200	32.5"x20.1"x13.5"	32.5"x20.1"x13.5"	32.5"x20.1"x13.5"	32.5"x20.1"x13.5"	65"x20.1"x13.5"	60"x36"x16"
	250 - 500	250 - 500	44.2"x31.1"x16.8"	72"x36"x23.5"	72"x31.5"x18"	72"x36"x23.5"	72"x72"x23.5"	72"x72"x23.5"
	5 - 15	7.5 - 20	13.05"x9.0"x10.9"	13.05"x9.0"x10.9"	20.74"x9.0"x10.9"	20.74"x9.0"x10.9"	24"x24"x14.2"	24"x24"x14.2"
	20 - 40	25 - 40	13.05"x9.0"x10.9"	13.05"x9.0"x10.9"	20.74"x9.0"x10.9"	20.74"x9.0"x10.9"	24"x30"x14.2"	24"x30"x14.2"
	50 - 75	50 - 75	25"x11.6"x11.1"	25"x11.6"x11.1"	25"x11.6"x11.1"	25"x11.6"x11.1"	38.4"x11.6"x11.1"	38.4"x11.6"x11.1"
	100 - 200	100 - 200	32.5"x20.1"x13.5"	32.5"x20.1"x13.5"	32.5"x20.1"x13.5"	32.5"x20.1"x13.5"	65"x20.1"x13.5"	60"x36"x16"
	250 - 600	250 - 600	44.2"x31.1"x16.8"	72"x36"x23.5"	72"x31.5"x18"	72"x36"x23.5"	72"x72"x23.5"	72"x72"x23.5"

(1) All Dimensions in Inches (HxWxD)
 (2) Horsepower Rating based on 230, 460 and 575VAC Motors
 (3) High Overload Capacity Drives produce 150% of Rated Drive Output Current for 1 minutes
 (4) Normal Overload Capacity Drives produce 120% of Rated Drive Output Current for 1 minutes
 (5) Consult Factory for Higher HP Drive Dimensions