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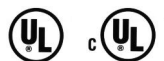
Phoenix DS Sensorless AC Vector Drive



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