



US Drives, Inc.  
2221 Niagara Falls Boulevard  
P.O. Box 281  
Niagara Falls, NY 14304-0281  
Tel: (716) 731-1606 Fax: (716) 731-1524  
Visit us at [www.usdrivesinc.com](http://www.usdrivesinc.com)

## Phoenix DX Sensorless AC Vector Drive



### 3 HP to 3500 HP

#### **Standard Features:**

- \* *PRECISE CONTROL OF MOTOR SPEED AND TORQUE*
- \* *EASY TO USE, SIMPLE SETUP*
- \* *ENGLISH LANGUAGE DISPLAY - 2 LINE, 32 CHARACTER*
- \* *50°C AMBIENT TEMPERATURE RATING*
- \* *SHORT CIRCUIT AND GROUND FAULT PROTECTION*
- \* *TOLERATES HIGH INPUT AC LINE VOLTAGES*
- \* *BUILT IN LINE VOLTAGE SURGE PROTECTION*
- \* *MOTOR OVERLOAD PROTECTION, MEETS NEC 430*
- \* *BUILT IN RFI NOISE FILTER*
- \* *HIGH PERFORMANCE PID CONTROL*
- \* *8 PRESET SPEEDS WITH ACCEL/DECEL CONTROL*
- \* *BI-DIRECTIONAL FLYCATCHER (CATCH SPINNING MOTOR)*
- \* *POWER DIP RIDE THROUGH*
- \* *KW / KWH METERING*
- \* *S CURVE ACCEL/DECEL CONTROL*
- \* *PROGRAMMABLE THRESHOLD DETECTORS*
- \* *MULTI FUNCTION I / O*
- \* *CUSTOM V/Hz PROGRAMMING*
- \* *AUTOLOGGING FAULT HISTORY*
- \* *FIXED OR VARIABLE CARRIER FREQUENCY*
- \* *AUTO RESTART*
- \* *MUCH, MUCH, MORE*



**THREE YEAR WARRANTY**

**MADE IN USA**



# ENGINEERING SPECIFICATIONS

## **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.

## **CONTROL**

**Control Method:** Sine coded PWM with programmable carrier.  
Space Vector control.

**Output Voltage:** 0 to input 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: 0.0005Hz 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  
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%

**Control power ride-thru:** Two (2) seconds (typical) depending on load.

## **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/sec<sup>2</sup> (1.0G) peak.

**Surge Protection:** Line Transients to 6000V  
IEEE C62.41-1991 Category B  
Showering Arc - 2000V Peak  
EN50082 - 1, 2

**Noise Immunity:** Standard on all models.

**Input R.F.I Filter:** Standard on all models.

## **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.).

## **AVAILABLE OPTIONS**

- Signal Conditioners/Isolators
- Communications Cards: RS-232/422/485, Modbus RTU,  
Metasys N2, Others Available
- Analog Signal Conditioner/Isolation Cards
- Digital Input/Output Expansion/Conditioning Cards
- Hand/Off/Auto, Local/Remote, Auto/Manual Selection
- Many Additional Modificaitons Available

**Phoenix DX AC Drive Dimensions<sup>1</sup>**

Input Voltage	Motor HP <sup>2</sup>		Nema 1 VFD Only	Nema 12 VFD Only	Nema 1 w Disconnect & Fuses	Nema 12 w Disconnect & Fuses	Nema 1 w Bypass	Nema 12 w Bypass
	High Overload Capacity <sup>3</sup> (CT)	Normal Overload Capacity <sup>4</sup> (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"	65"x20.1"x13.5"
	125-250	125-250	44.2"x31.1"x16.8"	72"x36"x23.5"	86.5"x31.5"x18"	72"x36"x23.5"	72"x72"x23.5"	72"x72"x23.5"
380-500 VAC (380/400/415/480)	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"
	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"	65"x20.1"x13.5"
	250-500	250-500	44.2"x31.1"x16.8"	72"x36"x23.5"	86.5"x31.5"x18"	72"x36"x23.5"	72"x72"x23.5"	72"x72"x23.5"
525-600 VAC (525/572/600)	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"	65"x20.1"x13.5"
	250-600	250-600	44.2"x31.1"x16.8"	72"x36"x23.5"	86.5"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 minute.  
 (4) Normal Overload Capacity Drives produce 120% of Rated Drive Output Current for 1 minute.  
 (5) Consult Factory for Higher HP Drive Dimensions.