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

SINGLE PHASE Phoenix AC Drives
3 HP to 500 HP

Many locations only have Single Phase power available. Examples of applications at these sites include: agriculture (irrigation, pumping, loaders, and other machinery), oil and gas (pumping, water injection and extraction). Three Phase AC Drives have long been used on Single Phase power systems but with significant degradation of performance and with a host of reliability problems. One of the biggest problems with Single Phase input power is the stress it has on the DC Bus filtering capacitors and the input rectifier of an AC Drive which can lead to premature failure of these components. Other associated problems with Single Phase input power are nuisance tripping of the AC Drive with faults such as under-voltage and over-current that prevent the AC Drive from delivering maximum performance.

US Drives, Inc. has engineered a line of AC Drives specifically designed to overcome the problems with Single Phase input power. We are so comfortable with the design that we offer a Three Year Warranty on all our Drives.

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**

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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: 1

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

Noise Immunity: 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 Single Phase AC Drive Dimensions[1]

Input Voltage	Motor HP [2] High Overload Capacity[3] (CT)	Motor HP [2] Normal Overload Capacity[4] (VT)	Nema 1 VFD Only	Nema 12 VFD Only	Nema 1 w Disconnect & Fuses	Nema 12 w Disconnect & Fuses
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"
	10	15	25"x11.6"x11.1"	25"x11.6"x11.1"	25"x11.6"x11.1"	25"x11.6"x11.1"
	15-40	20 - 50	32.5"x20.1"x13.5"	32.5"x20.1"x13.5"	32.5"x20.1"x13.5"	32.5"x20.1"x13.5"
	50-125	60 - 125	44"x31.1"x16.8"	72"x36"x23.5"	86.5"x31.5"x18"	72"x36"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"
	20-25	25 - 30	25"x11.6"x11.1"	25"x11.6"x11.1"	25"x11.6"x11.1"	25"x11.6"x11.1"
	30-75	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"
	100 - 250	125 - 250	44"x31.1"x16.8"	72"x36"x23.5"	86.5"x31.5"x18"	72"x36"x23.5"
525 - 600 VAC (525/575/600)	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"
	20-25	25 - 30	25"x11.6"x11.1"	25"x11.6"x11.1"	25"x11.6"x11.1"	25"x11.6"x11.1"
	30-75	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"
	100 - 250	125 - 250	44"x31.1"x16.8"	72"x36"x23.5"	86.5"x31.5"x18"	72"x36"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