

# **AquaPhase™** *The Power Behind the Pump*

The AquaPhase Pump Converter provides soft start operation of three-phase pumps and other motors when only single-phase service is available. Incorporating the best features of Phase Technologies' award-winning Phase Perfect Digital Phase Converter with a variable frequency drive (VFD), this unique converter boosts 240V single-phase input to 480V three-phase, variable frequency output without using a transformer.

## **POWER QUALITY**

The voltage boosting input module is equipped with electronic power factor correction, which eliminates the troublesome harmonic distortion common to VFDs. The AquaPhase Pump Converter easily complies with IEEE 519, the standard for allowable voltage and current distortion, without adding expensive input harmonic filters.

AquaPhase can also be specified with sine wave output voltage to protect submersible pump motors from damaging voltage rise that can occur from harmonics in the PWM voltage of a VFD.

## **ECONOMY**

The AquaPhase Pump Converter does not require oversizing, as a three-phase VFD does when used as a phase converter. It comes in a compact, rugged wall mount NEMA 1 enclosure that can be converted to NEMA 3R with the addition of a simple, affordable rain shield.

## **VERSATILITY**

Whether your power source is 240V or 480V, single-phase or three-phase, indoor or outdoor, AquaPhase fits your application.

## **ADVANCED FEATURES**

Variable frequency output soft starts the motor to eliminate line disturbance and reduce water hammer. AquaPhase offers advanced, programmable motor and pump protection features including over/under voltage, over/under current, dry well and much more. Control circuits for 0-5 VDC or 4-20 mA provide the ability to monitor and control motor torque and speed. It is also equipped to operate constant pressure water systems.

## **EASY INSTALLATION AND OPERATION**

Unlike "off the shelf" VFDs that are difficult to program, the AquaPhase intuitive user interface allows advanced programmable pump protection with ease, and has the familiar look and feel of a pump panel with RUN, START, STOP controls. The user interface also displays easy to understand trouble shooting codes. Installation can usually be accomplished in just minutes with a minimum of additional equipment required.

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***THE ONLY VARIABLE SPEED  
PHASE CONVERTER THAT  
DOUBLES OUTPUT VOLTAGE  
WITHOUT A TRANSFORMER***

***LOW INPUT HARMONICS  
COMPLIES WITH IEEE 519***

***AVAILABLE IN OUTDOOR  
RAINPROOF ENCLOSURE***

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***Phase Technologies — POWERFUL SOLUTIONS***

*Although designed specifically for pumping applications, AQUAPHASE is suitable for operating any three-phase motor load where phase conversion and/or variable speed operation is desirable. Common applications include:*

**FANS • PRESSES • PUMP JACKS  
SUBMERSIBLES • PC PUMP • GRAIN DRYERS**

## Specifications Subject to change without notice.

Model:	APX10	APX20	APX30
Rated HP	10	20	30
Rated Output Current	18 amps	31 amps	46 amps
Rated Output voltage	460 VAC, 3-phase, 60 Hz		
Rated Capacity (460V) KVA	15 KVA	25.8 KVA	38.2 KVA
Rated Input voltage	240/480 VAC		
Rated Input Current (240V/480V) single-phase	58 / 29 amps	100 / 50 amps	139 / 69 amps
Input Current Characteristics	Sinusoidal, Power Factor .98		
Overload Capacity	300% for 10 seconds		
Voltage/Frequency Characteristic	V/f control or sensorless vector control		
Output Inverter Control Method	Pulse Width Modulation (PWM) Control		
Altitude	De-rate above 2,000 meters		
Operating Temperature	-10 to 40° C		
Output Frequency Range	0 to 120 Hz		
Efficiency	95% typical		
Enclosure	Type 1 indoor or 3R rain proof, powder coated galvanealed steel		
Weight	65/74 lbs	110/125 lbs	149/165 lbs
Dimensions (H x W x D in.)			
Type 1 indoor	17 x 12 x 12	23 x 19 x 15	25 x 20 x 15
Type 3R rainproof	23 x 12 x 16	28 x 19 x 21	30 x 20 x 20

## Control Signal Ratings

Control Signal / Port	
Analog Output	0 to 5 VDC
Analog Input, Current	4 to 20 mA
Analog Input, Voltage	0 to 5 VDC
Alarm Relay	Dry Contact
Run/Stop Input 1	Galvanically isolated, requires contact closure
Run/Stop Input 2	Galvanically isolated, requires contact closure

