

# ELECTRO POWER

CUSTOM CONTROL PANELS FOR ALL INDUSTRIES



## MOTOR CONTROL ON THE FARM

- GRAIN BINS
- GRAIN LEGS
- GRAIN DRYERS
- BUCKET ELEVATORS
- MANURE PUMPS
- CONVEYORS
- UNLOADERS
- FANS
- AIR TRANSFER SYSTEMS



- SINGLE TO THREE PHASE CONVERSION
- VFDS
- SOFT-STARTS
- MOTORS
- CUSTOM AND STOCK PANELS
- COMPLETE CONTROL SYSTEMS
- WIRELESS RADIO CONTROL



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The Best 24/7 Tech Support and Start-Up Assistance in the Business



# Benefits of using a VFD on the Farm

- **Can anyone's VFD convert Single to Three Phase ?**

The answer to that is NO. Not all Variable Speed Drives are capable of doing it because of their particular design. Not only can this be a problem, but not all VFDs are UL Listed for Single Phase input and may not be approved by your electrical inspector.

- **How do you properly size a VFD for Single Phase input?**

Because you are running a Three Phase motor you have three legs carrying equal power to the motor, but you have only two wires supplying the same amount of power to the VFD. So, the Input side or LINE SIDE of the VFD will be carrying more Amps. This amounts to Output Amps times 1.732 ( Square Root  $\sqrt{3}$  ). Therefore if you have 10 amps going to the three phase motor, there will be 17.32 amps on the input side of the VFD. Size your VFD for at least the motor Full Load Amps ( FLA ) times the Service Factor times 1.732. ( 10A motor X 1.15 service factor X 1.732 sqrt3 = 19.91 amp VFD minimum )

- **Energy Savings**

By slowing down the speed of a motor on a Pump or Fan you also reduce the energy being used by the motor. Most Irrigation Pumps are supplying much more GPM than is required for the field. This excess water is being nozzled down or restricted by the system for the particular requirements. The pump is still running at full speed and consuming nearly full power. By adjusting the speed of the pump with a VFD, we are able to supply the proper pressure and reduce electrical consumption. A Speed decrease of only 10% results in a net savings of nearly 30%. Paying 30% less for your electricity adds up.

- **Utility Peak Demand Charge**

On your utility bill you'll probably see what they refer to as a demand charge. A demand charge is a charge above what you actually use and accessed based on what the utility has to be able to provide you. This demand charge usually stems from the starting of motors across the line. A typical motor may require 10 amps to run, but it may take 70 amps to start the motor. This 60 amps is where the demand charge comes from. A motor started with a regular Motor Starter draws 6 to 7 times what it takes to run the same motor. A Soft-Start take a minimum of 3 to 4 times the Full Load Amps to start the motor. A VFD on the other hand can start a motor at just over the running amps of the same motor. Around 120% or 1.2 times FLA.

- **Mechanical Benefits**

By controlling the speed of the Start and Stop and continuously monitoring the load, the mechanical components from the motor all the way through the entire system come under far less stress. Less stress means longer life and less maintenance.

## ELECTRO POWER on the FARM

As a company we specialize in Phase Conversion, Speed and Pressure Regulation for Fans, Unloaders, Dryers, Augers, Air Transfer and more for the farm. We have been doing this for over 30 years and have the experience to know what it is you need and how it works.

30+ years Design and Build experience.

30+ Years Field Experience on the Farm.

24/7 Tech Support by people that know what they are doing.

Full in house engineering team.

Customize to any specification.

Specializing in VFDs and Soft-Starts for the Agricultural Market.

UL508A Certified Shop



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TCL

World's Best and Most Reliable Tech Support



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