

White Paper

Siemens agricultural pump panels: Protection and durability

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Pumps, motors and other electrical equipment on farms get run hard. Make sure yours can keep going through the toughest use.

Imagine this situation

Today you need to run the irrigation system to water the sweet corn crop in the southwest field. But when you try to start the system, nothing happens. Water for that system gets pumped from a well near the field, so you jump in the truck and go see what's wrong. The pump panel is mounted on a pole near the wellhead and controls the motor. The box used to be gray but now it's mostly rusty brown. Prying open the squeaky door reveals that everything inside is intact, but the thermal overloads are tripped. You reset those but the motor is dead, probably burned out windings. Maybe you lost a phase at some point, the bearings are shot or whatever, it's hard to tell, but the motor is toast. So instead of running your irrigation at a critical point, you have to hunt for a new pump motor.

A true-to-life situation? While the motor is being replaced, it is a good time to think about replacing the pump panel. That kind of agricultural service is hard on equipment:

- Installed remotely in areas with infrequent visits,
- Mounted outdoors, exposed to the elements year-round,
- Can sit idle for months at a time,
- Maintenance is seldom if it happens at all,
- Has to operate where power quality is not always stable, and



- Has to be dependable to ensure proper crop development at critical times. A pump panel with the right features probably could have prevented this situation by providing a higher level of protection for the motor.

Solutions for the toughest applications

Siemens has developed a family of pump panels designed specifically to meet the challenging demands of agricultural irrigation and other pumping applications. The Class 82 Slim Line NEMA-Rated Pump Panel was created to fulfill these critical applications by applying proven technologies to extend component life while providing sophisticated control strategies capable of protecting motors in the field.

Designed to Withstand the Elements—Putting equipment outdoors with only its own enclosure to protect it means the enclosure has to be very durable. Siemens begins with galvanized steel and then adds a durable baked-on powder coating on top. Even if the coating is damaged, rust can't get a grip due to the protective zinc layer beneath. Internal elements are protected as well. The printed circuit board within the overload relay is coated to increase corrosion resistance of the traces and components.

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Where Power is Unreliable—Agricultural installations are often in areas of grid instability where anomalies, phase imbalances and other disruptions are frequent. Since power conditioning is not practical, the pump panel has to defend the motor as well as it can. The Class 82 panel is outfitted with the Siemens ESP200 solid-state overload relay, which provides critical protective functions without a major cost increase. These solid-state overloads are now being used in the majority of new motor installations because they can be configured to trip when specific types of power problems occur. The ESP200 allows specific user settings:

- Dial-in the full-load amperage level across a wide 4-to-1 current range,
- Factory set for trip class 10 but can be field configurable for as fast as trip class 5,
- Field configurable to trip in the case of a phase imbalance, phase loss, or ground fault,

- Reset can be automatic or manual, and
- Since there is no thermal element, it does not heat up the enclosure interior.

The right package at the right price

The Class 82 Slim Line Pump Panel delivers the features you need while remaining affordable:

- Operation can be manual on/off, or automatic interface with irrigation system,
- NEMA size 1 contactor covers motors up to 7.5 hp @ 230 Vac, or 10 hp @ 460 Vac,
- Three-point terminal strips for both power and control connections make wiring easier.

The combination of performance, operational convenience and durability make it your best buy for agricultural pumping applications.

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