REDHAWK ENERGY

Innovative Solutions for Your Critical Power Needs

Case Study

P250i Solid Oxide Fuel Cells Provide Extended-Run Backup Power Protection to Rail Grade Crossings in Indiana

Customer Motivation:

Seeking low maintenance and reliable backup power systems to protect their rail crossings during extended utility power outages caused by extreme weather or excess grid demand.

Old Approach:

For years this rail customer would deploy both permanent and portable gas/diesel generators to keep backup batteries charged and their rail crossings operational during power outages. While gas/diesel generators are often used for backup power due to their wide power range, mass market availability and low initial cost they have several drawbacks. You have to send personnel out to refuel the generator every 8-10 hours, change oil every 100 hours and with a short lifespan even replace after just a few events. In addition gas/diesel generators are noisy, have dirty emissions and are prone to theft in times of crisis.

New Approach:

With the adoption of fuel cell technology this customer was able to streamline their backup power at rail crossings across their network. Powered by readily available, easily transportable and low cost propane, the P250i Solid Oxide Fuel Cell sits in standby mode monitoring battery voltage. The P250i utilizes voltage sensing leads and a remote temperature probe to detect the actual battery voltage and temperature. When batteries dip below a certain pre-determined lower threshold voltage, the P250i will automatically start and begin to charge the batteries and power the load. Once the batteries are fully charged (upper threshold voltage is reached), the P250i will automatically begin to cooldown and return to its standby mode. The P250i can provide 130-160 hours of runtime on (2) 20# BBQ style propane tanks enabling it to power a rail crossing for days, weeks and even months at a time before tank changeout.

Advantages of Fuel Cells?

- **ZERO Maintenance**
  No moving parts, no oil changes
- **All-Climate Performance**
  Reliably operate in virtually any climate -40°F to 122°F
- **Easy Integration**
  Integrates seamlessly with new or existing power infrastructure
- **Eco-Friendly "Green" Operation**
  Zero emissions power generation

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