

### Customer Motivation:

Hassle-free and reliable backup power system for a high traffic railroad crossing application.

### System Overview:

The Ultra-AMI P250i Fuel Cell provides extended, maintenance free backup power for a busy railroad crossing. The P250i is a compact solid oxide fuel cell capable of powering a 250W load continuously. In this application, the fuel cell is housed inside a power enclosure with batteries, fuel connection hardware, a fuel supply and automation/communication equipment.



### Communications

The system offers four levels of data/monitoring communications including an integrated LCD screen, serial interface, engineering serial interface and internal system data storage.

### Fuel

Readily available and low cost, the system is powered by propane. Propane is an extremely energy dense fuel which is easily stored, shipped, and used.

### Performance

The system is built on a ceramic substrate which makes it tolerant to prolonged exposure at temperature extremes. During the winter the system can be stored or remain in standby mode indefinitely at temperatures as low as  $-65^{\circ}\text{C}$  without any need for supplemental heating. Because it does not require any water to operate, performance is equally strong during warm, dry seasons.

### Smart Battery Charging

To optimize battery life and prevent deep cycling of batteries, the system incorporates a temperature compensated charging profile which adjusts the target turn on and turn off setpoints based on the temperature of the battery. This results in up to a 30% increase in charge efficiency and capacity.



**Powered by Propane**  
\*Can also be powered by Natural Gas

### Safety Impact

This system integrates seamlessly with the utility grid and delivers the assurance needed that the railroad crossing will function properly if and when the utility grid fails.

### Environmental Impact

The system is a clean, eco-friendly energy producer with very low emissions of carbon dioxide and water vapor.



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