

Opto 22 from Martindale Improves ICSytem-6

Managing fuel costs and consumption is essential in the success of today's transportation industry. The cost of fuel is often the most significant expenditure incurred by a fleet or public transportation organization. Controlling this mission-critical asset is essential to the success of any transportation business whether it be a private fleet or public transportation authority.

Integrated Command Systems (ICS) understands the complications of designing, implementing and maintaining a successful fuel and fluids management system. Their expertise with fuel and fluid management dates back to the early 1990's when they successfully engaged in designing, manufacturing and implementing an automated fueling system, for the oldest and 4th largest Transportation Authority in America, the Massachusetts Bay Transportation Authority (MBTA). The MBTA provides transportation for nearly 1,000,000 passengers, fuelling some 1,600 vehicles daily. The result was the ICSytem-6 Fuel and Fluid Management System. The ICSytem-6 includes functionality to :



- Log fuel and fluid consumption and mileage of each vehicle so that failures can be predicted and service outages reduced
- Ensure that fuels and fluids go only into the intended vehicles
- Ensure that fuel and fluid deliveries are received in the quantities invoiced by the suppliers
- Ensure that the correct fuel and fluids are dispensed into the vehicles per manufacturers' requirements
- Reconcile inventory levels with deliveries and usage
- Schedule maintenance at the proper intervals
- Ensure that there is no fuel or fluid leakage into the environment
- Comply with federal, state and local environmental laws and regulations

The original brain used in the ICSytem-6 was a Western Reserve Controls unit, which could only communicate via RS422 protocol. In the late 90's ICS worked with Martindale to replace the Western unit with **Opto 22's** Snap Pac Ethernet Brain.

The **Opto 22** brain uses Ethernet as the communication protocol, which allowed the ICSytem-6 to more easily connect the controllers and network devices that had previously been difficult to connect. Proprietary communication equipment was no longer required, which eliminated the need for specialized dedicated communication links, and reduced the amount of communication gear necessary.

With the **Opto 22** units installed, the ICSytem-6 has been running 24 hours per day continually for the last 8 years. The improved communication ability has also allowed the system to automatically manage the fuel levels in the 20,000 gallon in-ground tanks for the first time, by integrating the fuel monitoring system with the server which manages the refueling operation. New fuel deliveries come in 10,000 gallon increments, and the tanks cannot be allowed to fall below a minimum of 2,000 gallons in each tank to keep from damaging the internal pumps. Now the fuel deliveries are automatically allocated between tanks to keep fuel at the required levels.

According to Mark Bruno, Vice President Engineering for ICS, "The Opto 22 brains have not only allowed our system to improve the efficiency of monitoring and managing the MBTA's fuel system, but they have been extremely reliable. We plan to use Opto 22 products wherever possible in future systems."