Case Study

Transportation System Data Logging

Company Profile

This customer has the largest subway systems in North America, consisting of over 500 stations managing over 5,000 rail cars. In excess of 5 million customers per day use this system, so safety, reliability, and uptime are of utmost importance. When unplanned events occur, it is critical that quick decisions are made. Having the data easily accessible and in the right place is vital to smooth operations.

Challenge

As cars enter and exit stations, several hundred events occur and need to be recorded quickly and accurately. The currently-installed system monitors the activity of all trains entering and leaving various stations through a large area network to a central system. Each station also has one or more stand-alone data recorders which serve as duplicate data recording devices. These recorders cost well over $10,000 each, are large, outdated, and unreliable, and do not provide a method for retrieving data in the event of a network outage.

Solution

The Rawson/Industrial Controls solution involves the use of an ultra-reliable solid state industrial computer and compact I/O modules which occupied roughly half the installation space. In many cases, these industrial computers can perform the tasks of multiple recording devices as a single system. In the event of network outages, the system buffers data and fills in the gaps in the central database when communications are re-established. Additionally, in the event of a long term outage, an operator can retrieve data locally via a standard USB memory device and analyze the data using standard tools, such as Microsoft Excel. The extraction of data is achieved either through a smart phone app or laptop computer using a simple interface which permits the user to easily select the time range and data points to be retrieved. This data can then also be reinserted into the central system, allowing for playback of events.

Results

When all new systems are installed, between $500,000 and $1,000,000 will be saved in hardware costs alone. The new system will enable faster response time, guaranteed data integrity, and fewer required resources.