APPLICATION NOTE

CAS DATALOGGERS

CAS DataLoggers Helps a NY Race Track Cut Energy Costs

HVAC Consultant Uses Electrocorder To Report Usage

CAS DataLoggers has provided the data logging solution for Anthony Flynn, Building Systems Engineer with Huston Engineering. Headquartered in Troy NY, Huston provides power measurement and analysis consultation for a variety of businesses and organizations. Huston's customer is the New York Racing Association of Saratoga who contracted them to source accurate yet cost-effective data logging equipment which can show the racetrack's management what their actual energy usage is and cut energy costs. However, when comparing prices, Huston found that many products on the market charge extra for current clamps and data storage memory. searching, Huston ordered 2 Electrocorder 3-phase Voltage and Current Data Logger Kits for Saratoga Racetrack. "We found CAS DataLoggers online. The main advantage for us was that your Electrocorder kits were available immediately--that was a necessity for us, and we got them shortly after our order. The price was well within range for all the equipment we wanted."

Installation

Each kit includes the data logger itself, voltage leads, transducers, Rogowski coils, software, and a USB lead for easy data retrieval in the field. Using the logger, users can view onsite power consumption given in kilowatt hours as a result of recording.

By continually monitoring at a high sample rate on a large memory, the power data loggers can find energy savings opportunities, identify supply and equipment issues, and/or view power consumption. Each power data logger is priced less than $1800, much less than competing products that can cut energy costs.

USAGE

These 3-phase data loggers record both energy (kWh) and power (kW) usage, checking voltage and current fluctuations to find related issues and gather data. Since the data logger records both voltage and current, users can determine if low voltage is related to high current demands onsite or if the site's low voltage is a supply issue instead. Anthony Flynn explains, "We're using the meters to monitor the capacity of existing overhead distribution to understand our client's ability for future expansion. We're focusing in the back of the area where the barns and dormitories are located. It's a big site with about 200 barns housing about 2000 horses. The site relies on a large, old overhead electrical distribution that's maybe 25 years old. At Huston we've already done energy estimates for our customer since the peak racing season is coming up soon and the place will be packed."

During the data collection phase of the project, each meter was hung outside on a pole in the provided carrying case. Given the outdoor nature of the application, Huston opted for the sturdier IP65/NEMA 12/4 version over the IP43 base version for solid protection from the weather. Flynn recalls, "The data loggers withstood some serious storms…from my experience with electrical equipment I expected to see just a pool of water when I came back, but they held up fine."

Prior to contacting CAS DataLoggers, Huston had conducted a load study on the site, so users already knew where their points of interest were. Each Electrocorder data logger has 3 voltage channels measuring from 30V-500Vac and 3 current channels measuring up to 400A, 1kA, 2kA or 3kAac. For a single phase, the logger records at a 30V-300V range. The included Rogowski coils fit around 140mm diameter cables using magnetic joints so users can place them around the cables without needing to disconnect the circuit. When only a single phase voltage supply is being logged, users can set the data logger to monitor and record 3-phase energy using its 3 current inputs and a single phase voltage input instead of the normal 3 voltage inputs.

Huston technicians installed the data loggers and monitored both voltage and capacity using a set of three 25kVa bucket transformers. Users monitored one 150 kVa bucket transformer at a time, looking for voltage issues such as voltage drops in numerous different locations. “We hung the current transformers from the overhead line, from the secondary log on the bucket transformers. The main overhead line is split in different directions so we directly put the current clamps onto the lines.” Technicians also closely examined the collected data to determine the power factor.

Benefits

Many competing products just take a single sample of the data but then go back to sleep, missing nearly all of the information necessary to spot problems and locate cost savings opportunities. By contrast, our power data logger kit utilizes a constant data sampling technique which samples every cycle multiple times for continuous recording, capturing much more data and enabling highly accurate metering.

Free Electrosoft software is also included with the kits, allowing users to define the voltage so they can plot power and energy, and then simply upload all recorded data via USB to a PC for detailed analysis. Flynn explains, “The software’s good, it’s quick and easy to get a picture of what the data will be using the charts. I already have a 15 to 20 page report I’ve put together, and with the real-time data I have from the meters, I can update that report with charts and graphs from Electrosoft. We’ll then present that report to the customer to say, ‘This is what your actual usage is vs. what the earlier estimate guessed it was.’ ”

Now Huston’s metering is complete and users can reconcile the real-time data with the load calculations they’ve already performed. Using Electrocorder, Huston is able to present convincing reports to their client and fully document the site’s capacity. Anthony Flynn explains, “The loggers have been working great and are exactly what we needed.” With a low price, all the necessary accessories, and continual monitoring capability, Electrocorder is an ideal solution for this HVAC application. In the near future, Saratoga racetrack can use the data loggers for other applications like voltage optimization and identifying undiagnosed power issues.

For further information on Accsense Electrocorder systems, how to cut energy costs, or to find the ideal solution for your application-specific needs, contact a CAS Data Logger Application Specialist at **(800) 956-4437** or www.DataLoggerInc.com.