APPLICATION NOTE

CAS DATALOGGERS

dataTaker Will Monitor Power Consumption Hassle-Free

DT80 and WattNode Transducers make data accessibility a snap

CAS DataLoggers provided a data logging system to a large concrete manufacturing plant that needed to monitor power consumption in conjunction with many other electrical parameters. This data was used both for energy efficiency studies and to capture voltage and frequency fluctuations in the power grid. The plant had strict requirements on the power factor of their equipment, so they wanted to install local metering to ensure that their equipment stayed within acceptable limits.
In cases where the power factor was not within these limits it could affect the stability of the whole power grid for that area and could result in fines from the power company.
The customer wanted to use about a dozen power monitoring devices that would allow them to record many different parameters on multiple pieces of equipment. The solutions would need to simultaneously interface with these individual meters and display all their aggregated data.

Installation

The concrete plant installed a dataTaker DT80 Intelligent Universal Input Data Logger in its utility room as the central monitoring point. The data logger was then connected to 12 Continental Control Systems WattNode Modbus power and energy meters.
The Wattnodes have a small form factor for easy installation inside the distribution panel near the different pieces of equipment. The Modbus version of the Wattnodes communicate via a multi-drop EIA RS-485 network to allow multiple units to send data back to a central data logger.

They can measure total energy and demand along with individual phase measurements including voltage, current, power factor, reactive power and energy, and line frequency. The Wattnodes come in single and three phase models suitable for use up to 600 VAC and 6,000 amps.

USAGE

The dataTaker DT80 intelligent universal data logger is a standalone data logging solution featuring analog, digital, pulse and serial data recording capabilities. Its 5 analog inputs offer 18-bit resolution and a ±50 V input to allow measurement of temperature, voltage, current, 4-20mA loops, resistance, strain gauges and almost any type of sensor. The DT80 also features a software configurable serial port that can be set for RS-232, RS-485 or RS-422 communications with built in support for Modbus RTU communications as either a master or slave device. Measured data can be used in calculations, can be scaled to engineering units or used in statistical reporting. The datalogger also included a built-in display and removable screw terminals for secure connections.

The dataTaker DT80 easily interfaced with the WattNodes' Modbus serial connection to quickly retrieve key parameters that characterized each devices power consumption profile. Using these power monitoring devices, which make all parameters available through Modbus, and the RS-485 multi-drop interface which allowed connection multiple units on a single two wire bus ensured data from all of the different monitoring points were easily aggregated on the DT80, making data accessibility a snap.

The DT80 also simplified data management with the ability to easily schedule sampling intervals and the capability of storing up to 10 million data points in user-defined memory. Operators could log as much or as little as needed and with the logger's multiple communications interfaces including USB, Ethernet or a USB memory slot they could quickly retrieve stored data or download automatically via FTP. The logger also can provide alarm notifications via email in case a critical parameter like power factor started to drift outside of the acceptable range.

dataTaker's user-friendly dEX software, included free of charge with the datalogger, featured everything operators needed to monitor power consumption. They could quickly configure the logger, monitor real-time data and download recorded data using a standard web browser which enabled access either locally or remotely over the Internet.

Benefits

The concrete plant realized several advantages following installation of the dataTaker DT80 universal input data logger and the Wattnode power monitoring devices. Most importantly, the DT80 formed a single solution using its RS-485 interface to easily connect with the multiple Wattnodes via Modbus. Using the dataTaker, the key energy and power consumption parameters were available simultaneously from all the monitoring points. The datalogger allowed management a hassle-free means to continually monitor power consumption, which in turn ensured that the plant did not get fines or cause problems in the power grid. Both the datalogger and the WattNodes also proved to be cost-effective devices which entirely replaced the need for several different dataloggers requiring different software and specifications.

For further information on the dataTaker DT80 intelligent universal input datalogger, other dataloggers in the highly successful dataTaker line, 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.