CAS DATALOGGERS

Power Metering with a DT80 Using WattNode Transducers

dataTaker DT80 Datalogger Performs Power Monitoring

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CAS DataLoggers recently provided the power monitoring solution for a large concrete manufacturing plant that needed to monitor power consumption in conjunction with many other electrical parameters to regulate not only energy efficiency but also fluctuations in the local power grid. The plant had strict requirements on how their equipment interacted with the local power grid, so they wanted to install local metering to ensure that the their equipment did not affect the stability of the local power grid and that their equipment stayed within acceptable limits--when the local grid experienced problems, this often affected the whole power grid for that area. The plant planned to use about a dozen multifunction power meters so that their desired monitoring solution would be capable of recording data from many different parameters from multiple pieces of equipment. This device would also need to simultaneously interface with these meters and display all their aggregated data.

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 energy and power meters** which had a small form factor for easy installation inside the distribution panel for the different pieces of equipment. These multifunction power monitoring devices communicated on a multi-drop EIA RS-485 network to measure voltages and current from the different pieces of equipment. The WattNode devices handled energy and demand metering as well as individual phase measurements including voltage, current, power factor, reactive power and energy, demand and peak demand, and line frequency.

The dataTaker DT80 intelligent universal data logger provided a standalone data logging solution featuring analog, digital, pulse and serial data recording capabilities. Its 5 analog inputs offered 18-bit resolution and a ±30 V input measurement range with a dual channel concept allowing up to 10 isolated or 15 common referenced analog inputs to be used in many combinations. These inputs enabled connection to most sensors and data measurement sources so that temperature, voltage, current, 4-20mA loops, resistance, bridges, strain gauges could all be logged and scaled. The DT80 also featured a software configurable serial port that could be set for RS-232, RS-485 or RS-422 communications and offered built in support for Modbus RTU communications as either a master or slave device. All measured data could be used in calculations or could be scaled, logged and returned in engineering units or within 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 connections to retrieve multiple parameters that characterized each device's power consumption profile. For simpler applications that only required recording power usage, the data logger's pulse counter inputs could be used with the simpler **WattNode–P** models providing pulse output proportional to energy consumption. The dataTaker recorded all the measurements without the need for several different loggers, each monitoring different parameters using different software and specifications. Using these power monitoring modules, all parameters were available through Modbus, and since the RS-485 interface could support multiple units on a single two wire bus, all dozen of the watt nodes were easily aggregated on the DT80, making data accessibility a snap.

The DT80 also simplified data management, storing up to 10 million data points in user-defined memory so that engineers could log as much or as little as needed using independent control of schedule size and mode, and also overwriting or stopping logging once memory was full. The logger's extensive communications array included Ethernet, RS-232 communication with PC and a USB memory slot. With this flexible device, operators could archive data on alarm event, copy to USB memory or transfer via FTP.

Additionally, dataTaker's user-friendly dEX software was included free of charge with the datalogger and featured everything users needed to read the pulse counts and scale them to energy. This software came pre-installed with a Windows Explorer-style graphical interface and enabled quick setup and configuration of the logger, configured and run directly from a web browser enabling access either locally or remotely over the Internet. Operators could use any of the logger's built-in communications ports to view dEX, including Ethernet, USB and RS-232.

The concrete plant realized several advantages following installation of the dataTaker DT80 universal input data logger. Most importantly, the DT80 formed a single solution with its universal inputs enabling pulse measurement, and was easily able to connect with the Continental WattNodes using the logger's Modbus connection. Using the dataTaker, all the power consumption parameters were available through Modbus, with the DT80 displaying the data from all dozen watt nodes. The datalogger allowed management a hassle-free means to continually monitor power consumption, which in turn ensured that the plant did not destabilize 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 more 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 Applications Specialist at (800) 956-4437 or visit the website at www.DataLoggerInc.com.

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