

# Oil & Gas: Well Monitoring

Data acquisition specifically designed for well monitoring applications



Campbell Scientific remote well monitoring systems report back to a central server where the temperature and pressure data is integrated into a data historian.

Campbell Scientific offers data acquisition specifically designed for well monitoring applications. Key components include dataloggers, vibrating wire interfaces, thermocouple multiplexers, radios and software.

# Dataloggers

Our dataloggers make and record measurements, control electrical devices, and can function as PLCs or RTUs. Because they have their own power supply (batteries, solar panels), the dataloggers continue to measure and store data and perform control during power outages. The dataloggers include many different channel types, allowing nearly all sensor types to be measured on a single unit.

Up to 2 million data points can be stored in the datalogger's non-volatile memory, while CompactFlash® cards can be used to increase data storage to tens of millions of points. Data is time and date-stamped to provide key information for identifying and analyzing past events.

#### Measurement Capabilities

Channel types include analog (singleended and differential), pulse, switched excitation, and digital. Each of these channels can be independently programmed for various sensor types. Most sensors connect directly to the datalogger, eliminating the need for external signal conditioning. Multiplexers and other peripherals can be used with most of our dataloggers to increase the numbers and types of channels.

# **Control Capabilities**

Powerful on-board instruction sets allow unattended measurement and control decisions based on time or conditional events. Dataloggers can be programmed to perform multiple control functions based on different scenarios.

# Benefits of our Systems

1. Complies with Modbus, DNP3, OPC Protocols for simple system integration to existing SCADA or DCS systems.

2. Systems perform long-term, unattended data collection.

3. Systems can be configured for every aspect of the application.

4. Dataloggers have on-board mathematical and statistical capabilities.

5. Time-stamped data is recorded allowing historical analyses.

6. Supports various communication technologies such as UHF , VHF and Spread Spectrum Radio, IP, cellular, RS-485 and satellite.

7. Electrical devices can be controlled based on time or measured parameters.

8. Rugged, low power design allows systems to operate in harsh environments.

9. Systems are able to operate in temperatures as low as -40°C.



AM25T & AM16/32B Thermocouple Multiplexers



### Sensors

Typical sensors for well monitoring applications include, but are not limited to: thermocouples, vibrating wire piezometers, pressure sensors and flow sensors. Campbell Scientific dataloggers are used to measure these sensor types and many more, including digital sensors.

#### Communications

Multiple telemetry and on-site options for retrieving data or reporting site conditions allow our systems to be customized to meet exact needs. Communications options include direct connect, radio, telephone, cellular phone, satellite, and Ethernet. Systems can be programmed to send alarms or report site conditions by calling out to computers, phones, and radios, or by sending SMS or email.

# Software

Our PC-based support software simplifies the entire data acquisition process, from programming to data retrieval to data display and analysis. Our software automatically manages data retrieval from networks or single stations. Robust error-checking ensures data integrity over almost any communications link.

# Field Services

Campbell Scientific offers installation and maintenance services in support of your project. No matter the application or where your station is located, CSC is here to help.

# Data Services

Our servers located in Edmonton can easily collect your data and images from any location while providing secure backup. Delivery and display options are very flexible and we can accommodate your varied and unique requirements.

# Knowledgeable Staff

CSC is committed to assisting our clients in the design and implementation of custom measurement systems for their specific oil & gas monitoring needs. Our expertise in system design, production and installation ensures cost-effective, quality solutions.

If you need assistance selecting the best sensor, telemetry, and datalogger combination, please contact us. We'd be happy to answer your questions and provide the most cost-effective solution for your needs.



Campbell Scientific surface electronics for monitoring an observation well. Battery powered stations are recharged with a solar panel for year-round operation, even in Arctic environments.



Campbell Scientific supplies pre-assembled, pre-configured systems ready for use.



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