



HVAC

Monitoring and control systems for HVAC

RELIABLE
SINCE 1974
MONITORING



Campbell Scientific systems for HVAC monitor humidity, flow rates, indoor temperature, outdoor temperature, differential pressures, and equipment status. Campbell Scientific systems can activate and con-

trol proportioning valves, boilers, heat-exchange units, pumps, blowers, and air handlers. Our dataloggers can use various types of input, and can output data and alarms via most communication methods.

Custom Systems

Most of the systems we sell are customized. Tell us what you need and we'll help you configure a system that meets your exact needs.

Dataloggers

Our dataloggers are programmable and provide advanced measurement and control. They perform the functions of a PLC or other control units. The reliability of our dataloggers ensures collection of time-stamped data, even under adverse circumstances. Because they have their own power supply (alkaline or rechargeable batteries), they continue to measure and record existing conditions during power outages. Up to 2 million data points can be stored onboard, depending on the model.

Time-stamped data provides valuable information for identifying and verifying past events. In HVAC operations where temperatures or other parameters must be kept within specific ranges (to



ensure the quality of products or equipment), historical data can provide important information. Harsh environments don't affect the reliability of our systems.

Statistical and mathematical functions are built into our dataloggers, allowing data reduction at the measurement site. Measurements can be processed and stored in the desired units of measure (e.g., °F, °C, psi, inches of water, inches of mercury).

Measurement Capabilities

Each datalogger has multiple channel types, allowing nearly all sensor types to be measured by a single unit. For example, one datalogger can measure voltage, air velocities, air temperature, relative humidity, energy use, water temperature, and steam pressure, as well as solar radiation, external temperature, wind speed,

and air quality. Channel types include analog (single-ended and differential), pulse, digital I/O, and switched excitation. Most sensors connect directly to the datalogger, eliminating external signal conditioning. Multiplexers and other peripherals can be used to increase the number of channels and channel types.

Control Capabilities

Because our dataloggers are programmable (without ladder logic), they can perform responsive measurement and control sequences. Powerful on-board instruction sets allow unattended measurement and control decisions based on time or conditional events. For example, alarms can be triggered, phone numbers

dialled, or equipment shut down if a boiler's water temperature is outside the desired range. Our systems can even perform control based on multiple conditions or events, such as deciding to increase or decrease air exchange based on time of day, outside temperature, and/or inside temperature.

More info: 435.227.9040

campbellsci.com/hvac-heating-ventilatioin-air-conditioning



Sensors

We manufacture many sensors ourselves and offer a wide variety made by other manufacturers. Since our dataloggers are com-

patible with most available sensors, you have the flexibility to customize a monitoring system to your site.

Communications

We offer multiple communications options for data retrieval, which can be mixed within the same network. Communications options for reporting site conditions include Wi-Fi, Ethernet, short-haul, telephone (land line, voice-synthesized, cellular), radio

frequency, and multidrop. The system can be monitored and controlled by an on-site or remote computer. You can even post your data on the Internet.

HVAC Case Studies

Our HVAC systems have helped a variety of organizations reach their goals. The following are a couple of these:

Campbell gear monitors and controls sustainability systems for the Proximity Hotel in Greensboro, North Carolina. This environmentally responsible hotel uses less energy and water, continuously employs cost-saving measures, and still uphold its luxury appeal to hundreds of guests and visitors each day.

www.campbellsci.com/green-hotel

The Solar Decathlon enlists teams of university students to design, build, and operate the most attractive, effective, and energy-efficient solar-powered houses. Campbell Scientific dataloggers were chosen for a key role in the evaluation of these houses.

www.campbellsci.com/solar-decathlon



By using less water and energy, and continuing to monitor its usage, the Proximity Hotel has proven to be a cost-saving facility.

Typical HVAC System

In a typical HVAC application, sensors monitor relative humidity, flow rates, indoor temperature, outdoor temperature, differential pressures, and equipment status. In smaller operations, only one datalogger is needed. When a large number of sensors are used or when there are many monitoring locations, additional dataloggers are used. Based on the measurements and the desired out-

come, the dataloggers actuate proportioning valves, boilers, heat exchange units, pumps, blowers, air handlers and other devices required to bring building(s) to the desired state. In case of equipment failure (or other measured event), the system sounds alarms or calls out on a phone, radio, cellphone, or other device. Data can be stored and/or transmitted to an on-site or central computer.

