



CATI
Center for Advanced Technology and Innovation

Controller for use in Environment /Climate Control Systems that Provides Diagnostic Data

Description: Johnson Controls a global engineering and process control company have developed a controller which stores diagnostic information related to the control of an environment or the operation of damper systems utilized in an environment control network. The unit includes an actuator which controls an amount of the forced air provided to the environment. The controller includes an actuator output, a communication port, a memory, and a processor.' The activator output is coupled with the actuator and provides an actuator signal for controlling the position of the actuator. The processor is configured to calculate and store average data related to the actuator signal.

The present invention also relates to an environment control system including a work station and a plurality of units. Each of the units provides forced air to an environment and is associated with a controller. Each controller is coupled to the work station via a communication bus and includes an environment sensor, a memory, and a processor. The environment sensor provides a parameter value related to the environment. This data is provided over time. The processor is coupled with memory and the environment sensor. The processor is configured to cyclically receive the parameter value and provide a summary value related to the parameter value and store the summary value in the memory. This memory is then available to external access.

Patent:

US Patent No. 5,555,195, Issued 09/10/1996

Market Potential:

Environment control networks or facility management systems are employed in office buildings, manufacturing facilities, and the like, for controlling the internal environment/climate of the facility. These environment control network may be employed to control temperature, airflow, humidity, lighting, or security in the internal environment of these facilities.

Benefits:

Large buildings typically have hundreds of controlled air units which are often positioned in hard to reach and visually obstructed places. Service people in charge of repairing controllers and associated activators receive complaints of a most general nature about the internal environment and are required to find the controlled air units which are responsible for the complaints. Once the hidden units are found, the service people must uncover the units and manually perform diagnostics for the units and the associated controllers by manipulating controls on the units and controllers etc. This patented technology simplifies this task. For

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example, the service people have no information about the duty cycle of the actuator, the temperature error in the environment, airflow error, or controller run time when the service people are away. Conventional environmental networks have not included a diagnostic system for automatically and periodically recording summary data indicative actuator positions, temperature error and airflow rate error over time etc. Thus, there is a need for a controller configured to store data associated with the lifetime operation of the controlled air unit and associated controller. The present invention relates to a controller operatively associated with a unit which provides forced air to an environment that has this capability. In addition, the controller of has the advantage of storing the summary data in its own memory, thereby relieving the network and work station of the memory and communication burden associated with the diagnostic information. In another aspect is that, a workstation or portable computer coupled with the controller receives the data and stores the data on a mass storage media such as a hard disk drive. The workstation or portable computer can then display the data in graph form or spreadsheet form so that controller performance of the entire network can be easily analyzed.

Additional Notes: US Patent No. 5,682,329 could be paired with this patent as a package to compliment the technology.

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