



**CATI**  
Center for Advanced Technology and Innovation

# Technology for On-line Monitoring of Controllers in Environment/Climate Control Networks

**Description:** This is a diagnostic system for use in a network control system. The diagnostic system is utilized to analyze component units in an environment/climate for performance in an environmental control system such as a network in a facilities management system. The diagnostic system records temperature (air & water) and actuator position data in the controller associated with these units and calculates an exponentially weighted moving average value. Such a system allows a person to analyze unit's performance over a particular timely period and the lifetime of the system. Warnings may be provided by the diagnostic system when the values are over or under particular threshold.

**Patent:**

**US Patent No. 5,682,329** Issued 10/28/1997

**Market Potential:** In areas where 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 environmentally controlled networks may be employed to control temperature, airflow, humidity, lighting, or security in the internal environment of these facilities.

**Benefits:** This system controller may be coupled to a communication bus within the environment/climate control network and is able to communicate with other components within the environment control network. For example, the controller may include circuitry which indicates when the controller has experienced a catastrophic malfunction. A message indicative of this malfunction may be communicated to components within the network across the communication bus. The controllers are generally capable of receiving and transmitting information and messages from other components within the environment control network. Environment control networks for large buildings frequently include an operator workstation for monitoring messages, entering time schedules for lights and system startup and shutdown schedules. Alternatively, the operator may monitor the network remotely using modems to communicate with digital controllers through laptops or other commissioning devices. This is unlike conventional environmental networks that have not typically included a diagnostic or performance monitor system for automatically and periodically recording summary data or performance indices indicative of quality and stability of control, temperature error and air flow rate error over time etc.

**Additional Notes:** US Patent No. 5,555,195 could be paired with this patent as a package to compliment the technology.

**Contact:**

Kate Walker -- CATI Assistant Director  
[kwalker@thecati.com](mailto:kwalker@thecati.com) -- 262-898-7410