



CATALYST

Efficiency Enhancing Controller

Patent Pending

The patent-pending CATALYST technology makes it possible to significantly improve the overall energy-efficiency of constant volume rooftop HVAC systems, reducing energy consumption by 25%-40% without undermining comfort, air quality, or the integrity of the equipment. The CATALYST is a proven retrofit technology that can be applied to systems by all manufacturers regardless of age. It is an integrated product that applies multiple sensors, controls the fan, heating, cooling, & economizer functions. The CATALYST is easily installed in series between the existing thermostat/control system and the HVAC equipment to provide a layer of intelligent control that radically improves performance.

CATALYST Energy Saving Strategies

“Opti-Run” Fan Control – Produces average fan energy savings of approximately 70%, while operating the unit within the manufacturer’s rated design parameters. The CATALYST monitors key system variables and adjusts the fan speed as needed to ensure proper equipment operation. These combined capabilities go beyond the abilities of a typical variable frequency drive (VFD) installation.

Integrated Economizer – Controls the economizer to allow for the simultaneous use of mechanical cooling and “free” outside air to satisfy a space. Most economizers operate on an “either/or” basis, leaving considerable energy savings unrealized.

Advanced Economizer Logic – The CATALYST is an Advanced Digital Economizer that is coupled with fan speed control to maximize the use of outside air for free cooling beyond traditional economizer control. It introduces the ability to sense and compare outside air and return air based on dry bulb temperature or dew point depending upon the climate. New patent-pending techniques proactively cool the interior commercial space before there is an actual call for cooling provides even greater savings.

Demand Control Ventilation – Demand Control Ventilation (DCV) uses a self-calibrating CO2 sensor to reduce excessive ventilation commonly found on commercial spaces. The CATALYST establishes occupancy levels and matches the amount of ventilation air delivered to the true needs of the space. This eliminates the cost required to heat and cool excess outside air. This strategy is documented in ANSI/ASHRAE Standard 62. The CATALYST goes beyond typical DCV control with an improved sequence that produces additional savings.

Demand Charge Reduction - The CATALYST contains features to reduce demand charges, which are punitive fees based on the rate of energy use. Demand charges can account for 10-20% of a commercial building’s total energy bill. The CATALYST reduces demand charges by decreasing the maximum consumption of each HVAC unit. It can also be used to limit demand by managing compressor use on multiple units. By balancing comfort and simultaneous energy use, operators can confidently participate in utility Automated Demand Response programs, which often include additional financial incentives and lower overall energy rate structures.



VENERGY
GROUP
Custom Energy Savings Solutions



Schedule
Contract GS21F054BA

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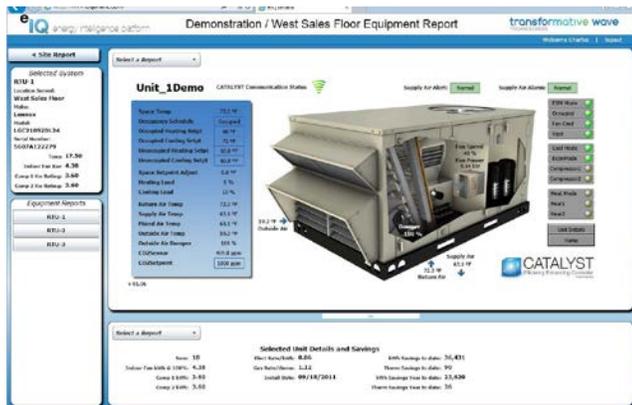
eIQ Energy Intelligence Platform

CATALYST controllers can be connected wirelessly via the eIQ Energy Intelligence Platform. The eIQ Platform provides an unprecedented level of monitoring, control, data collection and savings verification.

The features of the eIQ Platform include:

Web-Based Access – The system can be accessed anytime, anywhere by an authorized user on any computer or wireless device.

Real-time Energy Consumption Monitoring – The eIQ user interface displays the energy savings delivered by the CATALYST, shows historic performance data and system operational behavior.



Fault Detection and Diagnostics – Transformative Wave has developed several powerful diagnostic techniques to identify an array of conditions and service issues common to these HVAC systems. The eIQ displays these faults in a simple icon indicating the health of the unit and allows for electronic messaging of alarms. This enables corrective action to be taken before occupant comfort starts to suffer or system efficiency degrades.

Building Management Controls – The eIQ Platform can be integrated with most Building Management Systems (BMS). However, the eIQ Platform is a full-featured Tridium building automation product and is

commonly applied as the BMS to provide HVAC scheduling and space temperature control. It can also be expanded to control lighting or other automation needs.

Preventative Maintenance Cost Avoidance – The eIQ Platform provides considerable insight into aspects of HVAC system operation. It detects and communicates conditions such as fan belt slippage, filter performance, and other operational indicators. Preventative maintenance programs are often performed quarterly. The information provided by the eIQ can allow operators to conduct maintenance on an as-needed basis, resulting in reduced overall maintenance costs.



The CATALYST system components are delivered to the site as complete, well documented, UL listed kits that include all hardware and parts needed for a clean and repeatable installation. This greatly reduces the installation time and the overall cost of the product.

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