PRECISION AIR TECHNOLOGY INC.

PO Box 2176, Kirkland, WA 98083
Toll Free: 1-866-412-2121
Tel: 425-820-8610
Fax: 425-820-9005

Providing the latest technology in air filtration, ventilation monitoring & energy efficiency

The Air Energy Controller AEC-3™

Clean Technology for Green Buildings

Helping HVAC Systems Operate at Optimum Efficiency!

Precision in Building Operations Monitoring!

- Measures filter pressure drop.
- Measures filter or coils average velocity.
- Calculates energy being used.
- Calculates filter condition.
- Determines replacement point when cost, condition, energy and/or time parameters are met.
- All at variable velocities.
- Automatic Calibration Monitoring (ACM)™.
- Mod-bus RT.

The **AIR ENERGY CONTROLLER™** automatically learns the characteristics of new filters, even if the new filters are a different type. The **AIR ENERGY CONTROLLER™** works with variable flow.

In many applications energy is not yet the main factor; air quality is the main factor. In other applications the reverse is true. Energy costs will continue to go up. Air quality requirements will continue to get tighter. Filter technology will get better. The **AIR ENERGY CONTROLLER™** is designed to accommodate these changing conditions.

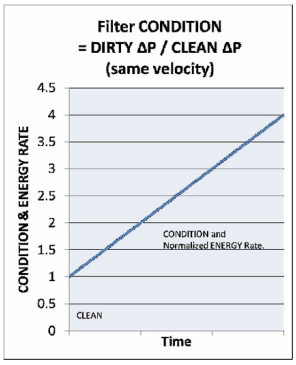
The **AIR ENERGY CONTROLLER™** uses an advanced ARM processor and sensor electronics to measure the pressure drop across the filters and average velocity through the filters. Additional information is supplied by the user; filter area, cost per kilowatt hour, and filter costs. Using standard energy equations, the processor calculates the energy being used and the average TOTAL-COST-PER-DAY by keeping track of time since the filters were replaced.

When new filters are installed, the **AIR ENERGY CONTROLLER™** automatically learns the characteristics of the new filters and restarts the evaluations.

ENERGY & CONDITION

The ENERGY used to force air through filters is directly related to the CONDITION of the filters.

We define the CONDITION as the ratio of Dirty-ΔP to Clean-ΔP at the same velocity. For example, if the CONDITION = 2, the filter ΔP has doubled since it was new (measured with the same velocity).



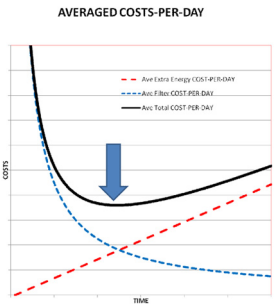
ENERGY = Q x ΔP x t / n / 1000

The same ratio applies to the rate at which ENERGY is being used.

DIRTY FILTER ENERGY rate = CONDITION x CLEAN FILTER ENERY rate.

ENERGY COSTS VS. DIRTY FILTER COSTS

The average COST PER DAY for filters is the cost of the filters divided by the number of days used. The average COST PER DAY decreases with time.



The extra energy cost starts at zero with new filters and rises steadily as the filters become dirty. The dirtier the filters, the more energy it takes to force air through the filters.

The average TOTAL COST PER DAY is the sum of the average FILTER COST PER DAY and the average extra ENERGY COST PER DAY.

Economically, the best time to change the filters is when the average TOTAL COST PER DAY is minimum.