

“Building owners and tenants don’t understand that many of the problems with their AC systems are due to worst-case design assumptions and excess system capacity.”

Bob Reichenbach, HVAC Service Manager for the Warko Group in Reading, PA deals with the consequences of system over-capacity and unhappy customers every day. But Reichenbach has a simple solution for most of these problems — the APR Control from Rawal Devices, Inc.

THE PROBLEM: Most HVAC Systems are Designed for ON/OFF Operation

Engineers design HVAC systems for maximum load conditions using a “design day” — a sunny, 95°F day with high relative humidity — and assuming maximum building occupancy. Since these conditions seldom occur, most of the time HVAC systems have more capacity than needed to satisfy actual load. And since most direct expansion (DX) systems lack the ability to run at less than full capacity, they cycle on and off constantly. This results in:

- *Uncomfortable conditions in the building.* When the AC system shuts off, humidity levels increase, causing occupants to feel uncomfortable even when temperatures are within the desired range.
- *Excessive compressor cycling* which can lead to coil icing, liquid slugging, poor dehumidification, and other system failures.

These problems are further exacerbated when portions of a building are vacant or when occupants tinker with thermostats in their efforts to compensate for AC system shortcomings.

THE SOLUTION: The APR Control

With over 30 years of experience in the design and service of HVAC systems, Reichenbach is extremely enthusiastic about the APR Control. “The APR Control basically takes an HVAC system designed for ON/OFF operation and allows it to “track” the load — to operate at the same capacity as the load,” observes Reichenbach. “It’s like giving your AC system a brain! “While compressors pump only what they are rated for, the APR Control “de-rates” the evaporator coil for a reduced load.



“It’s Like Giving Your AC System a Brain”

The APR Control:

- *Automatically modulates system capacity,* continuously matching it to changing load conditions
- *Reduces compressor cycling* (energy savings, less wear and tear on the compressor, lower repair costs, etc.)
- *Improves humidity control*
- *Prevents coil icing or liquid slugging,* even if a filter is clogged or a belt is malfunctioning (coil temperature never falls below freezing)

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- *Avoids water damage* due to melting of iced coils
- *Eliminates repeated service calls* for the same problem
- *Outperforms hot-gas bypass*

Especially suited for muggy weather regardless of the temperature outdoors, the APR Control maintains an AC system in a dehumidifying mode while allowing it to run at partial capacity. If the system is not performing properly, it forces a service call, but without the emergency of an iced-up coil. Because an air conditioning system equipped with the APR Control continuously monitors the heat content of return air, it is more economical than systems that rely solely on end-type controls such as thermostats and humidistats. The APR’s patented desuperheating design smoothly modulates the system’s capacity by varying refrigerant flow according to suction pressure, which changes with the temperature of air crossing the evaporator coil. Consequently, it controls both temperature and humidity more accurately, ensuring a more comfortable space.

Notes Reichenbach, “For customers under contract, the APR Control eliminates a long list of problems and a lot of service calls. For those not under contract, it corrects reoccurring problems and makes for happy customers. Either way, the APR Control is a service manager’s dream.”

For more information, contact: