

## Energy Technology Showcase



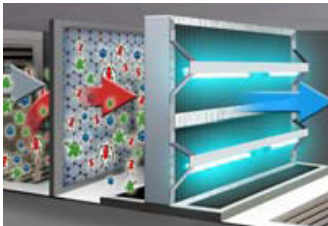
**Daylight Harvesting Ballast** reduces fluorescent lighting cost an average 40-50% in areas that receive daylight. When the ballast photosensor senses outdoor light, power is automatically reduced. Fixed level dimming is also available. Unique product eliminates expensive controls and wiring runs required for older generation technology.



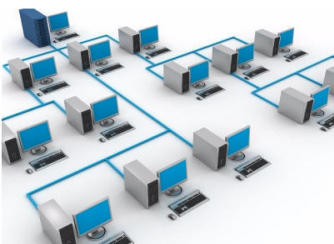
**LED Lighting** technology, which can save over 80% of the cost of incandescent, flood, spot, MR-16, and HID lighting for interior space, parking garages, outdoor and street lighting, has significantly advanced during the last 24 months. The lumens per watt, cost-effectiveness, lighting quality, and a standard 5-year warranty, now make LEDs a compelling investment. LEDs are mercury-free and do not have the disposal and pollution issues of mercury-containing fluorescent and compact fluorescent lighting. LEDs long life produces huge maintenance savings.



**The HVACR Smartcool Cycle Manager Unit (CMU)** typically saves 12% to 18% on compressors with one or two stages of on/off control. Duty Cyclers have fixed condition operation, and don't adjust to dynamic conditions, as does Smartcool. With Smartcool retrofitted to HVAC, the compressor operates at higher average suction pressure, enhancing heat removal efficiency. When demand conditions permit, the CMU shuts off the compressor at varying times during each cycle, creating a coasting type condition, while keeping temperature within the set-point range. Cycles increase nominally, within guidelines.



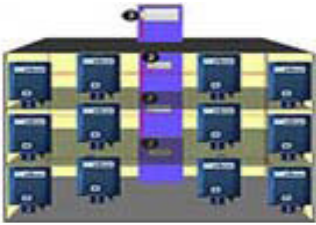
**HVAC Ultraviolet (UVC)** installs at HVAC coils to reduce energy cost, eliminate coil and drain pan cleaning, and greatly improve I.A.Q. All HVAC systems attract mold, which fouls coils and reduces heat transfer and air flow. UVC destroys mold, bacteria, and virus micro-organisms at the coil, returning heat transfer to near-original levels, eliminating coil cleaning, and improving IAQ to reduce absenteeism and improve productivity. Keeping coils clean can significantly reduce energy costs.



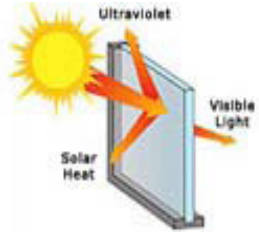
**PC Power Management** proprietary 'Intelligent Discovery' software technology substantially reduces PC network energy costs, generally \$35.00 to \$120.00 per year per computer, based on utility rate and computer operating schedule. The system learns IT schedules and user behavior to automatically turn PCs off when not in use, and back on when needed next. It adapts to changes in user computer usage patterns. Some utilities pay 100% of the system install cost. The system, in use worldwide, is simple and quick to install and is a useful tool for IT staff.



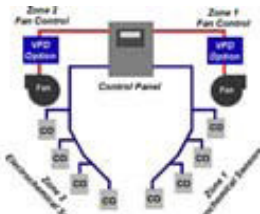
**Turbocor Refrigerant Compressor System** is a computerized, oil-free system with VFDs and magnetic bearings that reduces energy use up to 70%. It has only one moving part, is quiet, virtually vibration free, and is about 1/5 the weight and half the size of conventional compressors. Startup requires less than 2 amps, compared to 500-plus for conventional compressors. Turbocor operates most efficiency under reduced load.



**CO2 Sensor Building Ventilation Control System** eliminates high cost of using excessive amounts of outside air use for fresh air ventilation. Outside air design level is pre-set at fixed level for maximum expected occupancy. With variable occupancy, there is often up to 500% over-ventilation, wasting energy to heat or cool outside air. Sensors detect CO2 exhaled by occupants and adjust outside air to match occupancy.



**Solar Heat Reducing Window Film** reduces energy use and HVAC maintenance cost, improves comfort, extends HVAC equipment life, reduces UV rays and fading of furniture and carpeting, and enhances exterior appearance. Window film can be visually clear, tinted to various degrees, or reflective. Solar heat can often be reduced upwards to 12 degrees F in the space. The film comes with 10 -12 year warranties. Property value is usually improved with the addition of film.



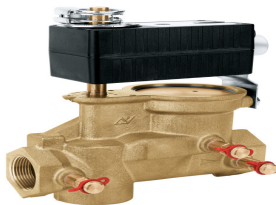
**CO Sensor System** with VFDs reduces 80% to 90% of the energy cost to operate exhaust fans in enclosed parking garages. Instead of running fans during all hours of garage operation, the sensor/VFD system operates fans at a low base level of ventilation and ramps up volume only as required if the CO sensors detect the presence of CO. This keeps air circulating and avoids turning fan motors on and off during the day for demand savings.



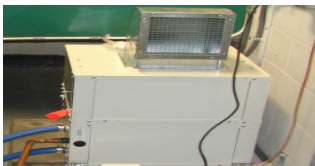
**Hotel Key Card Energy System** reduces room energy costs 20% to 45% by controlling energy use when a room is unoccupied. When entering rooms, guests place the key card in an entry-area slot to turn on HVAC, selected lighting and power outlets. When guest leaves a room and removes keycard, HVAC, lighting and power outlets revert to energy saving levels set by management, which always maintains guest comfort.



**Solar Energy** opportunities have evolved to provide greater application flexibility, lower costs, and ability to upgrade for continuing technology advances. System can be installed with no-capital-outlay under a Power Purchase Agreement (PPA). Under the PPA, the solar company provides and owns the equipment. The host company pays only for the energy produced at a price expected to always be below the utility price.



**DeltaPValves<sup>®</sup>** optimize HVAC hydronic system operation. These pressure independent valves accurately control hot and chilled water flow, regardless of system pressure fluctuations. Dynamically balanced through all loads. DeltaPValves<sup>®</sup> stabilize system flow and optimize coil heat transfer.



**Diesel Emergency Generator Heat Pump** takes over the function of block heater to maintain standby temperatures of the diesel generator to save 70 to 80% of the energy cost. The block heater typically maintains generator stand-by temperature often from 90°F and 120°F. The heat pump has an efficiency level 4 times greater than the block heater.

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**PLUS...VFDs, control systems, high efficiency HVAC, FANWALL system, premium high efficiency motors, controllable electronic HID lighting, induction lighting, cool roofs, thermal storage, water conservation, demand response options and more....**