

WHITEPAPER

AIR CLEANER CONTROL – METASYS® INTEGRATION

Cut Air Cleaner Energy Expense in Half with BERT

School districts and other commercial buildings installing powerful air cleaners reduce operating expenses 50%-70% with BERT Plug Load Control. Large savings are possible because portable air cleaners are uncontrolled, standalone units not connected to Building Automation Systems. Units run 24/7 unless someone physically turns the unit off. Baseline energy usage for uncontrolled air cleaners varies based on kWh rate and operating wattage. Annual per unit electrical expense for an uncontrolled 400 CFM unit at \$.08 kWh is \$355, while a high-end 1,500 CFM unit costs \$1,934 to operate at \$.16 kWh.

Using BERT to automatically power air cleaners on and off significantly lowers energy usage without sacrificing air quality. Annual energy expense drops to \$127 on the 400 CFM unit and \$692 on the 1,500 CFM unit when scheduled to run 60 hours a week. In addition, the reduction in operating hours extends product life and defers HEPA filter replacements—leading to additional savings.

Immediate Savings Drives Rapid Payback

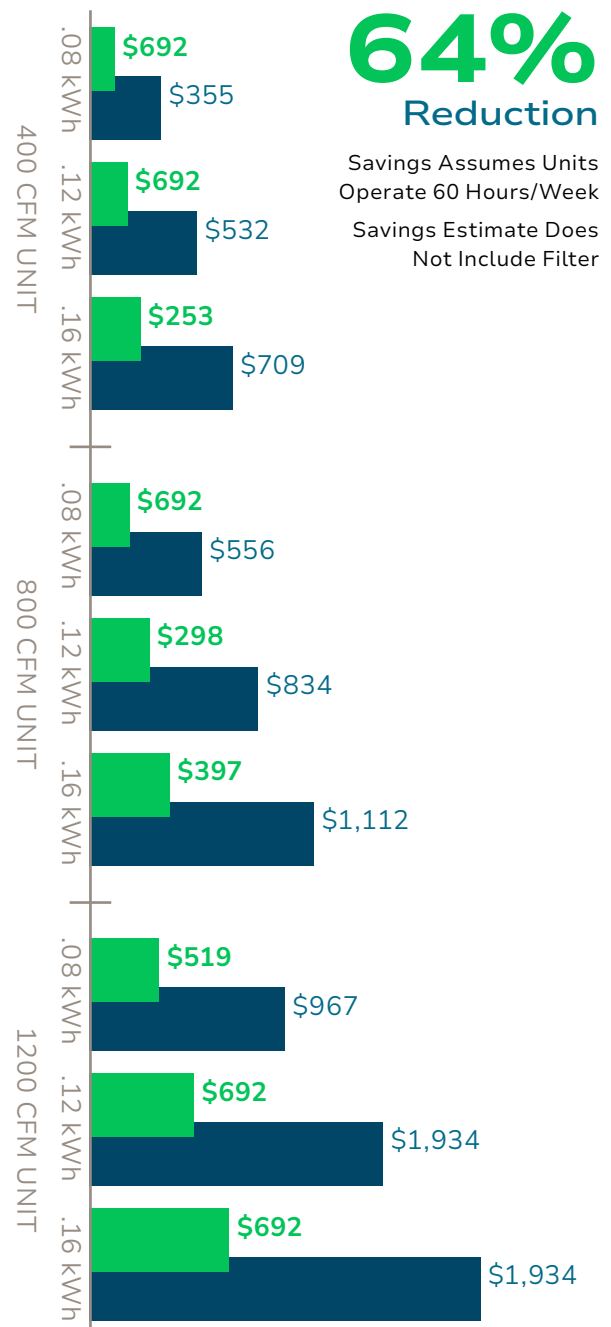
BERT installs quickly and pays for itself within months, even in low kWh locations. For example, the payback for a 400 CFM unit at \$.08 kWh is less than 12 months, while payback for a 1,500 CFM unit at \$.16 is under three months.

Installing BERT does not require an electrician. Portable air cleaners are plugged into BERT Smart Plugs which are plugged into existing wall outlets. The Smart Plugs use the existing 802.11 wireless network to communicate with either the BAS system or a BERT Server. Cleaners automatically turn on and off using a schedule based on each building's operating hours. Besides ensuring the units are off at night, cleaners can be turned on well before staff arrives each morning.

ANNUAL ELECTRICAL COST PER UNIT BEFORE & AFTER BERT

Sample kWh Rates

■ After BERT ■ Before BERT



Real-Time Visibility and Control

Users gain real-time visibility and control over air cleaners with BERT. Once units are scheduled by HVAC zone, building, or building group, energy savings are immediate. In addition, Berts can also monitor each unit's operating status, energy usage and communication status. Users can be confident that cleaners are operating as scheduled. Fan speeds can be confirmed, and operating hours tracked for routine filter replacement and liability documentation.

BERT Smart Plugs store schedules locally, meaning air cleaners continue to operate as scheduled even if the wireless network is down. Berts also have an override button that allows individual users to manually turn units on if needed during overnight hours.

Control Additional Building Loads for Greater Savings

BERT can control and measure other building loads in addition to portable air cleaners. To add loads, simply install more Smart Plugs or hardwired Inline units to the existing system. Window AC units, electric hot water heaters, exhaust fans, air handling units, vending machines, break room equipment, copiers and

other electronic equipment can be easily added. In most cases, overall building plug load expense drops by 30%-50% once BERT is installed.

Metasys® Integration Adds Value

While BERT is frequently installed as a standalone solution using a BERT Application Server, BERT delivers greater value when integrated with Metasys®. Air cleaners are controlled and monitored in coordination with other large building loads. Benefits include:

Automatic Alerts and Notifications

- Cleaner turns off unexpectedly
- Filter change needed –based on actual operating hours
- Fan speed change notifications

Enhanced Control and Monitoring

- Manage air cleaners in context with the HVAC system
- Motion sensors automatically turn air cleaners on

Detailed Reporting

- Track run time hours by unit, location, and building
- Record actual energy usage by hour

SAVINGS AT A GLANCE

School District with
2,500 Air Cleaners

kWH Rate
\$0.16KWH

Wattage
794 WATTS – 800 CFM UNIT

Operating Hours
3,132

\$2.8M

District Energy
Use/Baseline

\$1.8M

District Savings/
BERT

<4 Mos

Payback
Period

BERT METASYS® INTEGRATED SOLUTION

