

M-Box: Integrated Energy and Maintenance Mgt



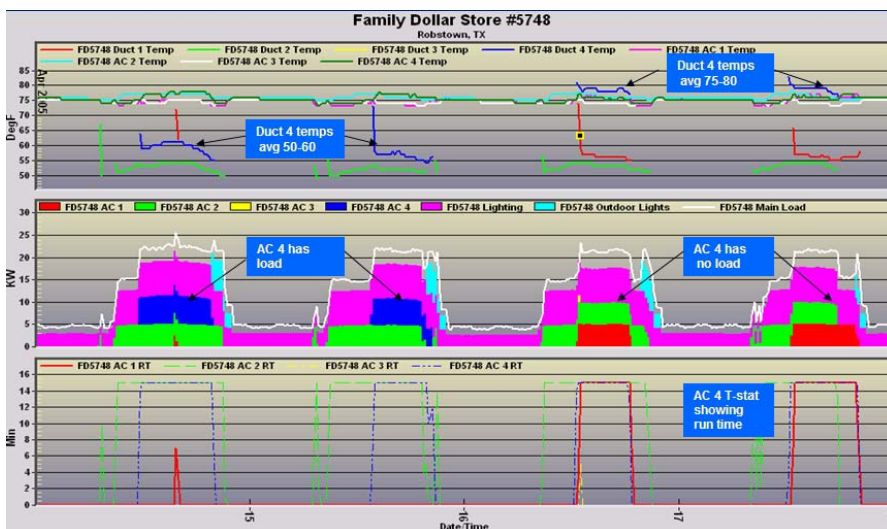
Service & Product Overview:

For the first time, maintenance can now be managed through an energy management system. The easy-to-use touch screen panel is designed for entering service requests at the building location. The M-Box software will directly dispatch service requests to the contractors you select to maintain your buildings providing the industries first "Maintenance on Demand™" service.

Commercial Applications:

- Energy Management and Automation
 - HVAC control
 - HVAC monitoring and dispatch
 - Supply air temperature
 - Runtime (by stage)
 - Filter condition
 - Electrical load
 - Lighting control and alarming
 - Electrical demand control
 - Environmental monitoring
 - Real time metering - 15 minute
- Maintenance & Service Management
 - Touch screen service entry
 - Up to 80 service categories
 - Problem codes and priority
 - Automated dispatch HVAC alarms
 - Failures, efficiency level or RCM thresholding
 - Automatic work order generation and dispatch
- Contractor sign in/out via touch screen
- Full integration to web-based CMMS

Real-time HVAC Monitoring and Dispatch



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Certified Supplier Categories:

- | | | |
|--|---|--|
| <input type="checkbox"/> Access Control Systems | <input type="checkbox"/> Fitness Equipment | <input type="checkbox"/> Pest Control |
| <input type="checkbox"/> Air Duct Cleaning | <input type="checkbox"/> Floor Maintenance | <input type="checkbox"/> Point of Sale Terminals |
| <input type="checkbox"/> Air and Water Filtration | <input type="checkbox"/> Fume Hood Cleaning | <input type="checkbox"/> Portable Toilets |
| <input type="checkbox"/> Alarm Monitoring | <input type="checkbox"/> General Maintenance | <input type="checkbox"/> Plumbing |
| <input type="checkbox"/> Asbestos Abatement | <input type="checkbox"/> Glass Repair & Replacement | <input type="checkbox"/> Refrigeration Equipment |
| <input type="checkbox"/> Asphalt Maintenance | <input type="checkbox"/> Grease Trap Maintenance | <input type="checkbox"/> Roll-Up Doors |
| <input type="checkbox"/> Automatic Door Maintenance | <input type="checkbox"/> HVAC Services | <input type="checkbox"/> Roof Installation and Service |
| <input type="checkbox"/> Bailer and Compactors | <input type="checkbox"/> Indoor Air Quality | <input type="checkbox"/> Safety |
| <input type="checkbox"/> Carpet Cleaning & Extraction | <input type="checkbox"/> Indoor Plant Services | <input type="checkbox"/> Security Guards |
| <input type="checkbox"/> Ceiling Tile Cleaning | <input type="checkbox"/> Indoor Signage | <input type="checkbox"/> Security Cameras and CCTV |
| <input type="checkbox"/> Computers and Peripherals | <input type="checkbox"/> Irrigation Systems | <input type="checkbox"/> Security Systems |
| <input type="checkbox"/> Concrete Maintenance | <input type="checkbox"/> Internet Services | <input type="checkbox"/> Security Monitoring |
| <input type="checkbox"/> Copiers and Fax | <input type="checkbox"/> Janitorial Services | <input type="checkbox"/> Sound Systems |
| <input type="checkbox"/> Construction and Renovation | <input type="checkbox"/> Kitchen Equipment | <input type="checkbox"/> Specialty Equipment |
| <input type="checkbox"/> Disaster Restoration | <input type="checkbox"/> Landscaping | <input type="checkbox"/> Storage Container Rent |
| <input type="checkbox"/> Electrical Maintenance | <input type="checkbox"/> Lighting Interior | <input type="checkbox"/> Snow Removal |
| <input type="checkbox"/> Emergency Generator Service | <input type="checkbox"/> Lighting Exterior | <input type="checkbox"/> Storage |
| <input type="checkbox"/> Engineering Services | <input type="checkbox"/> Lighting Retrofits | <input type="checkbox"/> Storm & Waste Water |
| <input type="checkbox"/> Elevators & Escalator Service | <input type="checkbox"/> Locks/Keys/Safes | <input type="checkbox"/> Telephone Systems |
| <input type="checkbox"/> Energy Management Systems | <input type="checkbox"/> Material Handling | <input type="checkbox"/> Temporary Fencing |
| <input type="checkbox"/> Energy Mgt | <input type="checkbox"/> Metal & Finish Maintenance | <input type="checkbox"/> Temporary Office Rent |
| <input type="checkbox"/> Energy Audits | <input type="checkbox"/> Mold Remediation | <input type="checkbox"/> Vehicle Maintenance |
| <input type="checkbox"/> Energy Monitoring | <input type="checkbox"/> Movers | <input type="checkbox"/> Vending |
| <input type="checkbox"/> Exterior Waterproofing | <input type="checkbox"/> Outdoor Signage | <input type="checkbox"/> Waste Management |
| <input type="checkbox"/> Fire Extinguisher Service | <input type="checkbox"/> Painting (interior) | <input type="checkbox"/> Water Treatment Services |
| <input type="checkbox"/> Fire Sprinkler Systems | <input type="checkbox"/> Painting (exterior) | <input type="checkbox"/> Window Washing |
| <input type="checkbox"/> Fire Alarm Systems | <input type="checkbox"/> Parking Lot Cleaning | <input type="checkbox"/> Wood Refinishing |

The Business Case for HVAC Preventative Maintenance:

Understanding HVAC Maintenance

Typical 5 ton roof top unit (RTU) facts:

- Replacement cost: \$5190
- Annual energy use: \$1059
- Maintenance cost: \$300

Sources of savings:

- Energy savings 16% - \$169
- Emergency repair costs with no maintenance
 - \$1000 once every five years
 - Frequency 1:5 yrs = average \$200 per year
- Return on Investment before capital replacement
 - $(\$300) + 169 + 200 = \$69+$ saving per yr/unit
- Capital replacement – lifecycle savings
 - 10 year life - \$519 per year
 - 18 year life - \$288 per year
 - Extended equip. life = \$231+ savings per yr/unit

Maintenance on Demand™ can reduce service frequency to twice a year



RTU Energy Savings from Maintenance: Unlike the evaporator coil, the condenser coil is exposed to unfiltered outdoor air—so it suffers much greater degradation due to dirt. The performance penalty of a dirty condenser makes this task one of the most cost-effective energy-efficiency practices available for rooftop unit maintenance. A dirty coil reduces the cooling ability of the air blowing across the condenser coils. If the condensing temperature is raised from 95° Fahrenheit (F) to 105°F as a result, then cooling capacity will be cut by 7 percent and increase power consumption by 10 percent, with a net compressor efficiency reduction of 16 percent.