Underground Car Parks and Loading Bays

Save Energy Costs with Demand Controlled Ventilation

In most enclosed or underground car parks toxic gases from vehicle exhaust, such as carbon monoxide (CO) and nitrogen dioxide (NO_2), present a health risk to the general public and personnel. The risk of toxic gas poisoning in these enclosures is normally reduced or removed by natural or mechanical ventilation. While this approach is effective, the costs of continuous ventilation are very high.

Introducing VESDA ECO by Xtralis

Extending its world-renowned VESDA® aspirating smoke detection (ASD) technology, Xtralis has introduced the industry's first system to combine ASD with gas detection and environmental monitoring. VESDA ECO uses an existing VESDA pipe network to actively sample air for the presence of smoke as well as combustible or toxic gases or for oxygen deprived areas.

In car parks and loading bays, VESDA ECO can be used to continuously monitor toxic gases, such as CO and NO_2, to trigger demand controlled ventilation (DCV), therefore reducing energy cost. Many industries commonly use DCV. Engineers and consumers are well aware of the costs involved in running even medium-sized electric fans. For example, a single, 30 kW, 3 PH, 4-pole electric fan running 24 hours a day, seven days a week and at 16 cents per kW/hr equates to an annual cost of $42,000.

Savings of more than $8,000 to $16,000 per year can be realized if VESDA ECO is used to trigger DCV, which saves 20 to 40 percent, respectively. Reduced carbon emissions alone provide a strong justification for using gas detection equipment such as VESDA ECO. The added reduction in energy costs really makes a compelling case for VESDA ECO gas detection and DCV.

Demand controlled ventilation reduces energy costs.

20% DCV Savings

Annual Savings vs Energy Cost per KWH

- 45 KW Motor
- 30 KW Motor
- 15 KW Motor
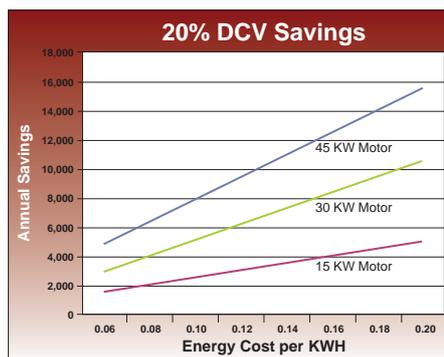
Suitable for:

- Commercial buildings
- Government facilities
- Transportation hubs
- Logistics centers

VESDA ECO™ by xtralis™

VESDA ECO Benefits

- 24/7 dual early warning gas and smoke detection
- Better area coverage and protection through multi-hole air sampling
- Simplified installation, maintenance and service
- Lower total cost of ownership
- Energy cost savings via DCV
- Simplified configuration and management using Xtralis VSC and VSM software
- Direct interface to FACP, HVAC and BMS using relays, 4-20 mA or Modbus outputs

Aspirating Smoke Detection with Gas Detection and Environmental Monitoring

Time to Respond Because of Early Warning

- Active air sampling means earlier detection of smoke, CO and NO_2 through the use of the VESDA distributed sampling pipe network.
- Early detection provides time to react to emergencies while maintaining air quality for the public and personnel.

Reliable Performance

- The delivery of an air/gas sample is guaranteed because each sampling pipe is individually monitored for air-flow fault through the VESDA smoke and VESDA ECO gas detectors.
- Absolute smoke measurement is provided with the industry's only optical clean-air bleed to ensure detector performance and longevity.
- VESDA ECO is built on the world's No. 1 ASD system, which is backed by decades of successful operation in numerous applications and environments.

Flexible System Integration

- Real-time smoke and gas data is provided for an appropriate and staged response, including local alarm annunciation, alarm notification to a control room, and DCV for energy cost savings.
- Smoke and gas data can be gathered at a number of various control points through the use of a wide range of high- and low-level interfaces, including FACP, BMS, PLCs and HVAC systems.
- Full compatibility with Xtralis VSC and VSM4 software provides greater value because end users do not have to learn to operate additional software packages.

Industry's Lowest Cost of Ownership

- A VESDA ECO detector can be added easily to an existing VESDA pipe network without complex system redesign or rewiring.
- A VESDA ECO detector can house up to two gas sensors, and more detectors can be added if the detection of additional gases is required.
- VESDA ASD detectors do not require regular calibration, and VESDA ECO detectors can be easily calibrated — either manually or automatically, based upon the application.

Field Tested

Field tests conducted in a Brisbane underground bus station and a Melbourne office building's loading bay, both in Australia, have proved that VESDA ECO combined with VESDA ASD, as compared to conventional point (spot) type gas and smoke detectors, provides a holistic approach to detecting smoke and gases for the added protection of life, property and business continuity.

Refer to Application Notes, ECO Field Investigation - Underground Bus Station, Doc 19128, and Loading Bay, Doc 19010, for more information.

VESDA ECO™
by ◆ xtralis™