

APPLICATION NOTE No. 1

CAR PARK VENTILATION REQUIREMENTS



GTA-65 Series Sensor

- Australian designed & Manufactured
- Greater than 5 year sensor life
- Tamper proof construction
- GasTech's large range of standard sensors
- RFI/EMI Resistant powder coated protective case
- Gas concentration indicator
- MTBF 10 years on electronics
- 10-30VDC operation
- 4-20mA source output
- In built automatic sensor test with indication and confirmation (BIT)
- -20°C to +50°C operating temp

Recover costs in as little as 18 months

GasTech Australia's "65 Series" Carpark monitoring system has been designed to provide a very cost effective solution to your Carpark ventilation problems. Designed to meet Australian standards AS 1668.2-1991, it could reduce your electric bill by 60% and with the savings, achieve an 18 month pay back.

Monitoring for Carbon Monoxide levels continuously, and starting and stopping the ventilation system only when necessary to ventilate the exhaust fumes from actual car movements, maximizes your energy savings.

If your Carpark is enclosed or partially enclosed, no matter what size, you will need a ventilation system to maintain air quality to acceptable standards. The GasTech 65 Series provides the economical solution. Either as a separate stand alone system or a fully integrated Building Management System, controlling hundreds of sensors and fans, the savings are considerable and worthwhile.

For more information contact Gastech on 1 800 999 902, and find out how we can minimise your costs.



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GASTECH
AUSTRALIA

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Most enclosed or semi enclosed car parks both private and public, have a requirement to provide continuous ventilation to maintain internal air quality at all times, to within statutory requirements, while the car park is in use.

Australian Standard AS 1668.2-1991, sets out the requirements for air handling systems, where such systems are required by a Regulatory Authority.

The operating costs of running such a ventilation system continuously, can quickly become prohibitive. Significant energy cost savings can be achieved by controlling the ventilation system with a Carbon Monoxide Gas Detection System. Energy savings from an efficiently designed system can provide a rapid return on capital cost. In it's simplest form, a single speed electrical ventilation fan, sized to provide the necessary ventilation flow rate requirements, ensures that concentrations of Carbon Dioxide within the car park do not exceed exposure standards listed by Work Safe Australia.

In a car park, the gas detection system can switch on the ventilation fan or fans with rising levels of carbon monoxide as the number of car movements increases during the day. In the same way, the system can switch fans off when the number of car movements decrease. Additional operating cost savings can be achieved by the use of dual speed or variable speed electrical ventilation fans.

The inertia requirements for starting ventilation fans, imposes manufacturers limits on the electrical drive motors to no more than four (4) starts per hour. Otherwise they can overheat and burn out. This maximum starts/hour requirement is catered for within the AS 1668.2 recommended cycle.

The Carpark Ventilation control logic supplied with our GTA 65 Series Carpark Gas Detection system,

complies with the requirements of AS 1668.2 and the ventilation systems drive motor manufacturers limitations on the number of starts per hour.

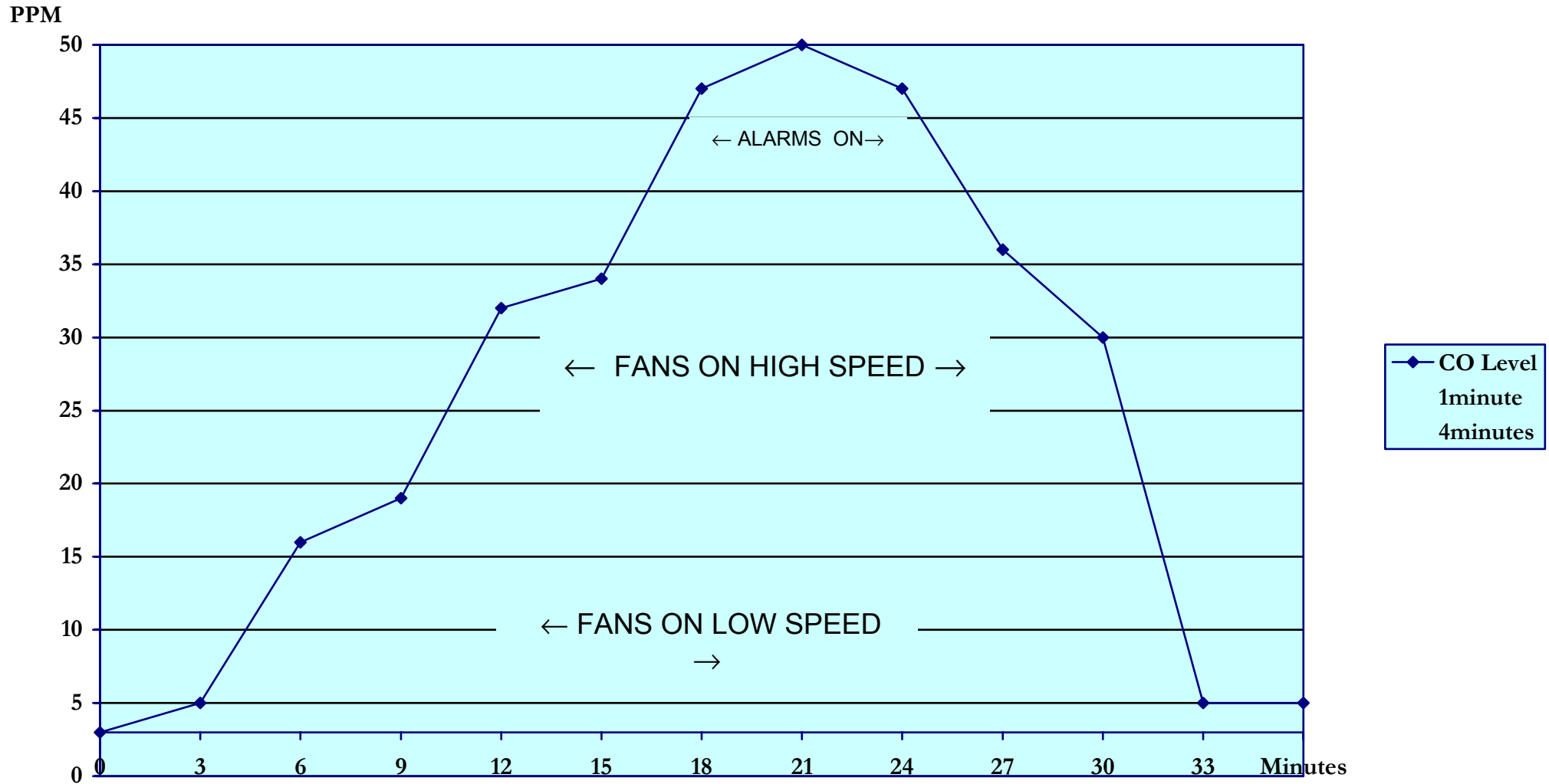
A dual speed ventilation system would initiate a 'slow speed start', when the system sensed a CO level above 8 ppm anytime after a four minute initial monitoring period. If, despite this level of ventilation the sensed gas level continues to rise, then once it reaches 25 ppm and a further 11 minute monitoring period has elapsed, the motor will switch to maximum ventilation, with the fan now being driven at maximum speed. There is a further four minute gas level monitoring period, before the fan speed can be reduced with reducing gas levels.

This cycle matches fully, the requirements of AS 1668.2 and provides for a conforming Carpark ventilation control system.

We can also provide additional features if required. Where the gas level continues to rise, despite the fans running at maximum speed, perhaps due to a long queue of cars waiting to exit the Carpark. An additional set of contacts can be provided to operate audible and visible alarms, requesting that engines be switched off until the gas level reduces to acceptable levels. In addition an analog output provides control for a variable speed electrical drive motor.

Our application engineers can work with you to specify a cost effective system in regard to initial capital cost and minimal long term operating costs.

The following graph indicates a typical Carpark gas cycle that the ventilation system would have to deal with.



Note: According to AS1668.2, ventilation fans may only be stopped under certain conditions, for example:

- A) The level of CO is less than 8ppm (15%ES)
- B) This low level has been maintained for at least four minutes
- C) Adequate approved natural ventilation is available to clear low level pollutants, such as petrol vapors.



Please note: This graph is a representation only.