**Peregian Springs Arcare**

**Car Park**

**Car Park Maintenance Report**

Service performed on: 19th July 2018

**Integrated electrical & communications**

Hemmant, QLD 4174

Gold Coast, QLD 4214

Coffs Harbour, NSW 2450

Office: 07 3890 8112

**Integrated refrigeration & air conditioning**

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# Site Information

|  |  |
| --- | --- |
| **Site Name** | Arcare Peregian |
| **Site Address** | 33 Ridgeview Drive, Peregian Springs |
| **Service Date** | 19th June 2018 |
| **Service Company** | Integrated Control and Automation |
| **Service Personnel** | Michael Sargent |

# Service Contact

Integrated Control and Automation

ABN:

Postal Address: PO Box 1645, Carindale QLD 4152

Telephone: 07 3890 8112

Email: [mike.sargent@igoc.com.au](mailto:mike.sargent@igoc.com.au)

# Aim

The aim of the work performed is provide safe and energy efficient (if used to control ventilation) CO control of the car park via the maintenance of the exisiting CO sensors.

# Objective

The aim will be acheived by inspecting and calibrating, where neccessary,each individual CO sensor in the car park. Sensors which are reading incorrectly will be calibrated and any faulty sensors will be noted and building personnel notified.

# Procedure

If this was the first time the service had been performed for this site, an initial survey was performed:

1. Familiarise ourselves with the floor plan and identify locations of the three CO sensors and ventilation fans.
2. Record the sensor and fan identification and locations on a site plan.

Each individual sensor was then subjected to the following service procedure:

1. Visually inspect the external and internal sensor for any obvious signs of failure or damage.
2. Purge the sensor with an inert gas.
   1. While subjecting the sensor to the inert gas, the sensor output across the test terminals was recorded.
   2. If the output did not read 4mA, then the zero potentiometer was adjusted until 4mA was reached.
3. Subject the sensor to the test gas of known concentration.
   1. While subjecting the sensor to the test gas, the sensor output across the test terminals was recorded.
   2. If the output did not read the expected mA output, then the span potentiometer was adjusted until the correct mA output was reached.
4. Label the gas sensor housing stating calibration date, service person, and the next service due date.

The current on each ventilation fan was also measured and recorded to ensure even load on the phases, and to monitor performance of the fan motors.

# Test Equipment Details

|  |  |
| --- | --- |
| **Inert Gas** | |
| **Gas** | Air zero grade |
| **Concentration** | THC < 1ppm |
| **Cylinder Number** | 858773 Cylinder 31 |
| **Expected Zero Reading** | 4mA across the test terminals |

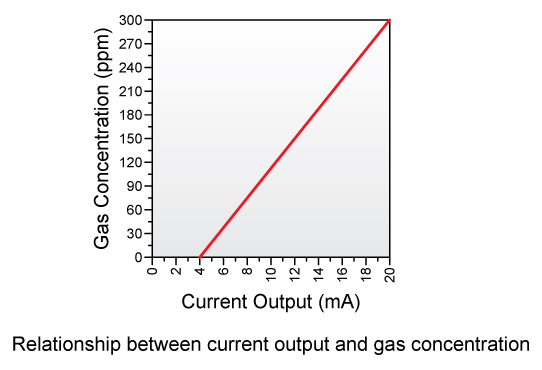
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| --- | --- |
| **Test Gas** | |
| **Gas** | Carbon Monoxide (CO), balance Nitrogen |
| **Concentration** | 50ppm |
| **Cylinder Number** | Lot 861746 Cylinder 22 |
| **Calculated Reading** | 6.66mA across the test terminals |

|  |  |
| --- | --- |
| **Multi Meter** | |
| **Brand** | AMPROBE |
| **Model** |  |
| **Serial Number** |  |
| **Last Calibrated** |  |

# Calibration Equation

[(16 x gas concentration in ppm) / maximum range of sensor in ppm] + 4 = current (mA) in the system

[(16 x 50) / 300] + 4 = 6.66mA



# Sensor Locations

Sketch here

NO2

EXHCPEF1

Control Panel

CO2

CO1

Entrance

# Site Equipment Details

|  |  |
| --- | --- |
| **Gas Sensor Details** | |
| **Manufacturer** | MSR |
| **Model** | Gard Transmitter |
| **Output** | 2-10VDC |
| **Nominal Range** | 0-150ppm |

PUT CALIBRATION STICKERS ON CO DETECTORS

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Gas Sensor Calibration** | | | | | | |
| **Last Service** | **Location** | **Sensor ID** | **Zero Reading** | | **Span Reading** | |
| **Original** | **Calibrated** | **Original** | **Calibrated** |
| June 2014 | CarPark | CO-1 | 2.002 | N/A | 7.61 | 7.34 (VDC) |
| June 2014 | CarPark | CO-2 | 1.984 | 2.001 | 7.68 | 7.33 |
| June 2014 | CarPark | NO 2 | N/A | N/A | N/A | N/A |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |

|  |  |
| --- | --- |
| **Ventilation Fan Details** | |
| **Fan Type** | Supply / Exhaust |
| **Fan Identification** | EXHCPEF1 |
| **Location** | Straight ahead from entrance, behind bus parking. |
| **Manufacturer** | FANTECH |
| **Model** | AP0806GA6B022 |
| **Control Method** | VSD |
| **Red Phase** | 2.5 A (Set to manual, VSD read @ 45Hz) |
| **White Phase** | 2.4 A (Set to manual, VSD read @ 45Hz) |
| **Blue Phase** | 2.7 A (Set to manual, VSD read @ 45Hz) |
| **Ventilation Fan VSD Details** | |
| **Manufacturer** | SANTERNO |
| **Model** | SINUS M |
| **Frequency** | 45 Hz |
| **Mode** | MANUAL |
| **Associated MSSB** | MSSB-1 |

|  |  |
| --- | --- |
| **Ventilation Fan Details** | |
| **Fan Type** |  |
| **Fan Identification** |  |
| **Location** |  |
| **Manufacturer** |  |
| **Model** |  |
| **Control Method** |  |
| **Red Phase** | ………….A (Set to manual, VSD read @ 50Hz) |
| **White Phase** | ………….A (Set to manual, VSD read @ 50Hz) |
| **Blue Phase** | ………….A (Set to manual, VSD read @ 50Hz) |
| **Ventilation Fan VSD Details** | |
| **Manufacturer** |  |
| **Model** |  |
| **Frequency** |  |
| **Mode** |  |
| **Associated MSSB** |  |

# Findings

All the CO sensors gave stable readings however calibrations were required for one of the sensors.

The fan currents measured were equal and satisfactory. The currents were read by forcing the fan in manual mode. Manual mode controlled the fans to between 45Hz via to the VSD. It is preferable to measure the currents when the fan is at maximum load.

# Recommendations

Following from the car park service, the following recommendations are as follows:

Continue to retest sensors every 6 months. **To ensure safe and efficient ventilation a calibration is due on the 19th January 2019.**