



4300-PG

Gas Detection for Parking Garages,
Warehouses, Service Bays, Arenas



Flexible monitoring and control for ventilation of Carbon Monoxide, Nitrogen Dioxide and Propane gas in apartment buildings, office and commercial buildings, public parking facilities and maintenance garages.



Control Panel



Enclosed in a Type 1 robust metal housing as a standard. Type 4x for wet locations optional. Buzzer is optional.

The 4300-PG is a complete gas monitoring system from Arjay Engineering. Over 40 years of gas detection experience has contributed to this monitor.

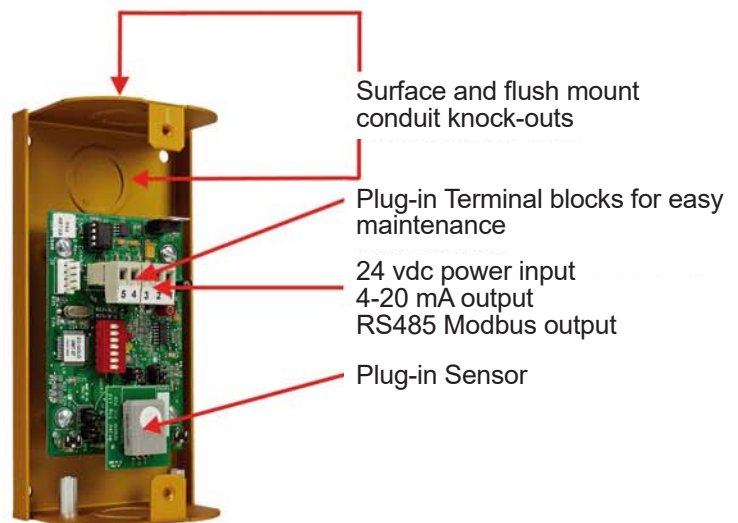
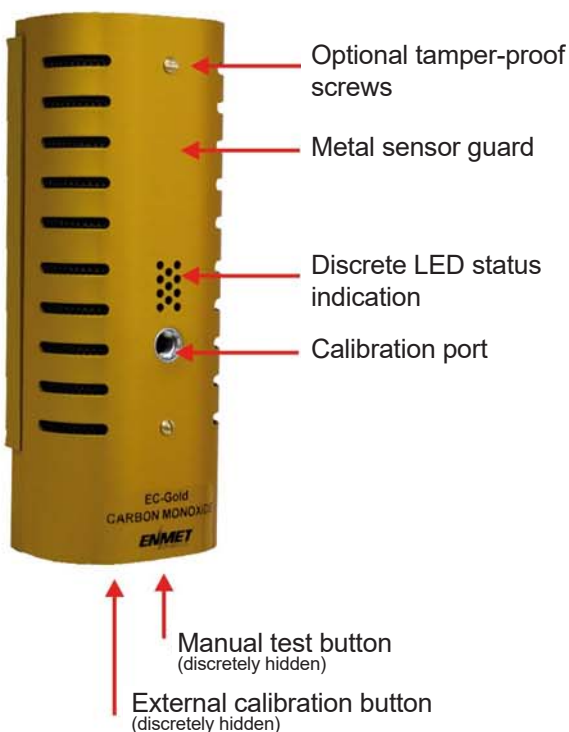
Designed for

- safety
- energy efficiency
- economical cost and maintenance
- ease of installation
- local codes and regulations

The 4300-PG provides a central panel that continuously scans the field of sensors for gas concentrations. When a sensor indicates a high level of gas, the controller will determine it's zone location and assign the appropriate fan to take action. Should the gas concentrations continue to rise, additional fans can be called upon. The unique cross-mapping feature can even call upon fans in different areas or garage levels to assist or alert concierge, control room or security centres.

In multi-level garages or garages with multiple fan locations, zone control and cross mapping optimizes energy efficiency by starting fans only in areas where ventilation is needed. When adequate ventilation is achieved, the fans automatically resume their normal or off speed.

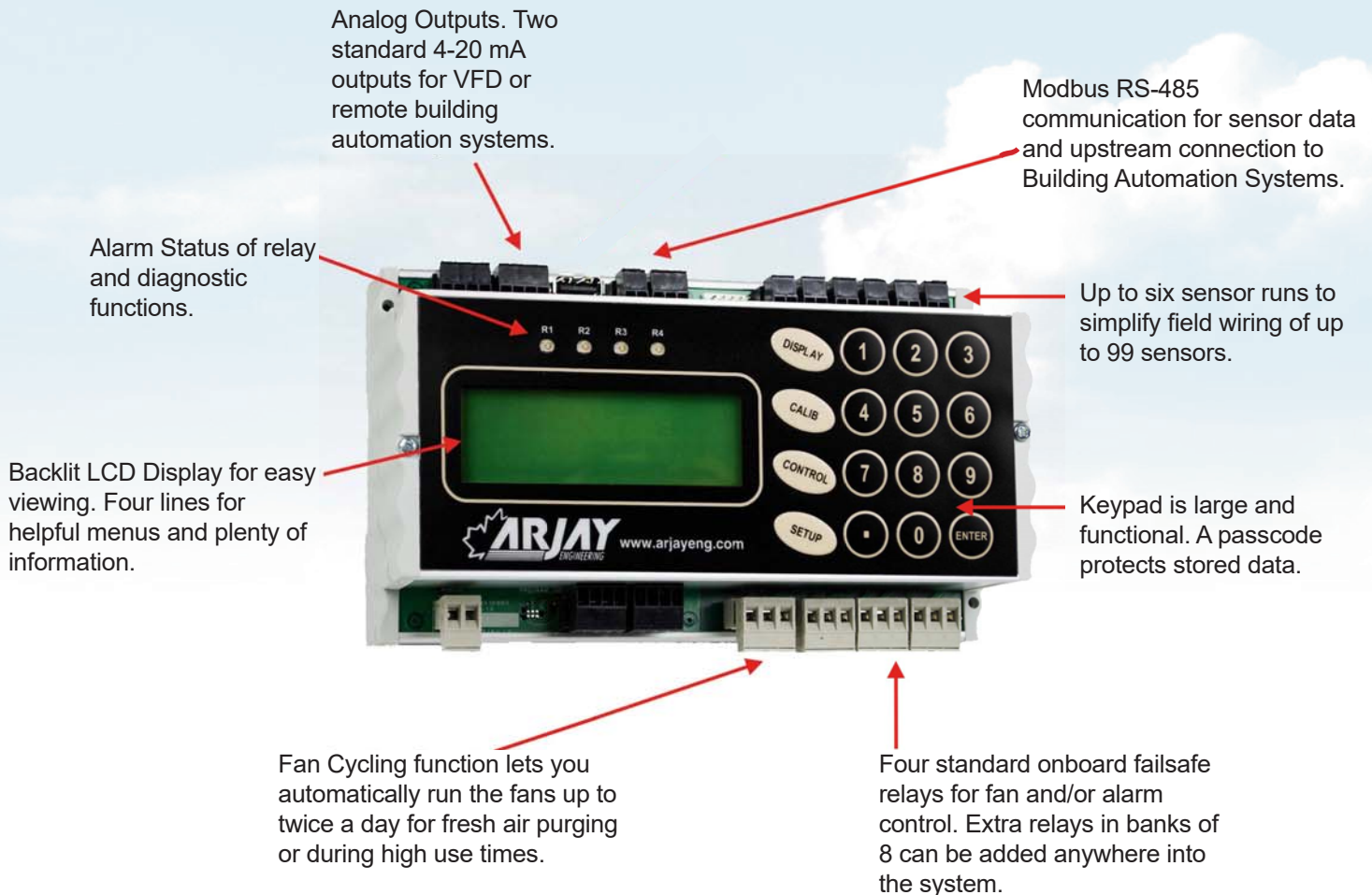
Field Sensors



WARRANTY

Standard 1 year on electronics and sensors. Optional 2 and 3 year warranty on electronics and CO sensor when combined with Arjay calibration services.

Ventilation Control



Sensor Coverage

In garages with low ventilation or many turns and alcoves, one sensor per 5,000 square feet is recommended (40' radius or about 80' sensor to sensor). In well ventilated and open concept garages, one sensor per 7,500 square feet is acceptable (48' radius or 96' sensor to sensor). In facilities with continuous mechanical air movers (transfer fans), a placement of one sensor per 10,000 square feet can be considered (57' radius or about 114' sensor to sensor).

There are no specific codes to dictate sensor coverage. Mechanical Engineers familiar with your ventilation system can assist.



Sensor Height

As exhaust cools, both CO and NO₂ will migrate toward the floor and pass the breathing zone. The intent of the ventilation system is to maintain safe concentrations for persons in the garage in an energy efficient manner. Sensors are recommended to be mounted in the breathing zone.

Local building codes and labour regulations may indicate specific sensor placement heights and should be verified before installation.

Features and Benefits

Controller

- central control continuously scans sensors
- bright backlit display and large keypad interface
- up to 99 sensors on one controller
- up to 64 discrete relay for fans and alarms
- up to 16 zones for efficient fan control
- analog outputs for VFD Fans
- user selectable alarm setpoints
- programmable fan cycling features for peak periods or fresh air cleansing
- fan run-time for Energy Rebate Efficiency Records
- modbus interface for BAS
- password protection
- optional buzzer with silence
- optional remote audio/visual alarms
- up to 6 wire runs from the controller to the sensors

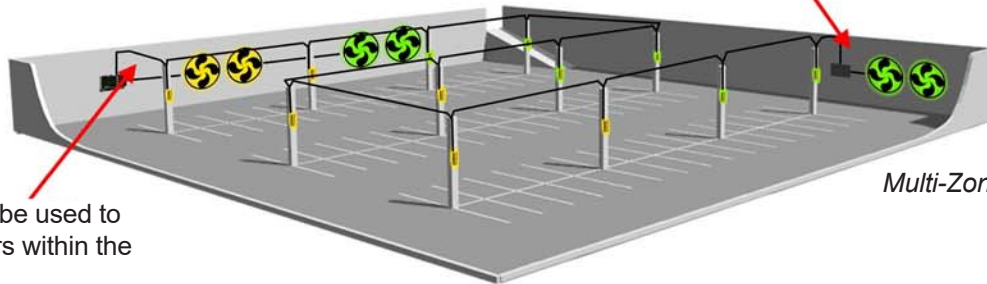
Sensor

- plug-in electrochemical sensors (CO and NO2)
- plug-in MOS sensor (propane)
- 3 year CO sensor life guarantee (5-7 year life expectancy)
- system interlock test button
- metal housing/sensor guard
- top and rear conduit entry
- LED alarm status

Warranty

Two year full system warranty for new Home Owner compliance
Three year warranty on CO sensor

Relay Analog Boards (RABs) can be mounted adjacent to the control panel or spread throughout the garage.



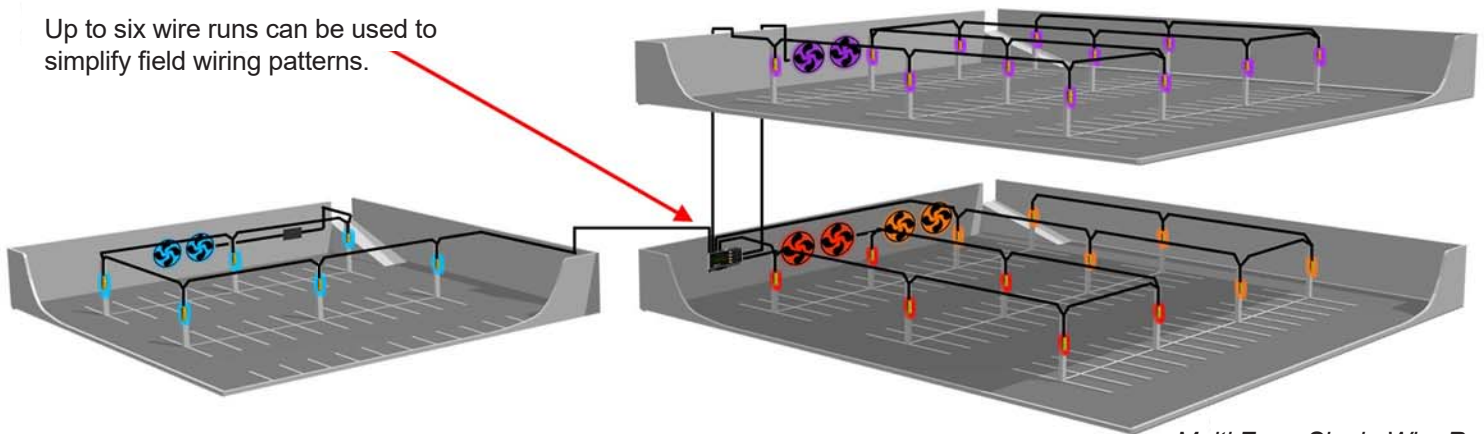
Multi-Zone Single Wire Run

A single wire run can be used to daisy-chain all sensors within the garage.

OR

Examples of wire run and zoning flexibility

Up to six wire runs can be used to simplify field wiring patterns.



Multi-Zone Single Wire Run



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Technical Specifications

Controller

Operating Temperature	0C to 50C
Environmental	Indoor use
Enclosure	Nema/Type 1 metal, optional Type 4
Power Input	24 vdc, 0.25 amps
Display/Interface	4-line LCD with keypad
Outputs	4 x SPDT alarm relays 2 x 4-20 mA Modbus RS-485 Removable USB drive
Datalogger	

Options

Power Supply	80-240 vac input, 50/60 Hz 24 vdc output, sized for number of sensors
RAB Board (Relay Analog Board)	8 x SPDT relays per RAB, up to 8 RABs per system 2 x 4-20 mA
Mini-RAB Board	3 x SPDT relays per RAB, up to 16 mini-RABs per system
Alarm Buzzer	Door mounted with silence
Remote audio/visual	Flashing light with buzzer

Sensor

Operating Temperature	-20C to 50C
Environmental	Indoor use
Enclosure	Nema/Type 1 metal
Power Input	24 vdc, .1 amps each
Visual Alarms	LED
Alarm Test	External Push Button
Sensor Type	Electrochemical
Sensor Guard	Aluminum housing shield

Ventilation Saving Calculation

Consider a parking garage or facility with 8 ventilation fans at 3 hp each running 24 hours per day.

8 fans @ 3 hp each = 24 hp

24 hp x .8 kw/hp = 19.2 kw

19.2 kw x \$0.10/kwhr = \$1.92/hr x 8760 hours/year = \$16 819.20 per year on energy costs

If a gas detector reduces the fan run time to 25%,

The savings = \$ 12 614.14 /year

Plus the savings on heat loss and fan wear and tear.

Plug in your own numbers or call us to help out.

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Sensor Power Wire Length Calculator

The maximum 24 vdc power wire length is dependent on the number of sensors that tap into the main wire run. The allowable main wire length is from the power supply directly to farthest sensor.

Use multiple wire runs from one power supply or multiple power supplies if required. This calculation is based on power supplies sized and supplied by Arjay.

Determining the Length of Power Wire Allowed

Draw a line from the number of sensors to be installed on the wire run through the wire size to be used. The point of intersection on the Wire Length scale will determine the maximum wire length allowed. Be sure to consider the pillar heights in your calculation.

Determining the Wire Size Required

Draw a line from the number of sensors to be installed to the distance of the farthest sensor to the power supply. The point of intersection on the wire gauge will be determined.

Sensor Communication Wire

Use Low-Capacitance RS-485 shielded communication wire. Maximum length per wire run is 4000 feet (1220 meters). Up to six runs can be installed onto one controller. Repeaters may be purchased in order to extend a wire run greater than 4000 feet.

