



KODIAK 
FIERCE VEHICLE FIRE PROTECTION



Quality is Behind the Diamond.

The **KODIAK** Advantage - *Quality. Service. Innovation.*

Tough Protection for a Rugged Environment

Fire protection for landfill vehicles present a difficult challenge. The machines collect combustible Class A materials in the engine compartment which can absorb flammable liquids and ignite. If the fire is not detected and suppressed rapidly it can spread throughout the machine and ignite the surrounding combustible materials on the landfill or transfer station. Amerex vehicle fire suppression systems automatically detects the fire and discharges our fire suppression agents knocking the fire down in seconds.

Integrating New Technology

In today's rapidly changing world where technology is constantly evolving, machines and fuel loads are becoming larger. Increased engine compartment temperatures are making the risks much greater and the solutions more difficult. You need a partner who understands the changing hazards and can integrate new technologies into a solution that protects your operations. Amerex offers industry standard dry chemical systems for rapid fire knockdown, Amerex ICS liquid system for cooling of heated surfaces and industry best dual agent Dry-ICS combination system for the best of both agents.

Why Amerex?

- **Quality** As a product of the USA, we provide higher quality products and ship them to you quickly
- **Experience** At Amerex, we use our experience to develop programs focused on understanding the waste industry and implementing processes of continuous improvement
- **Innovation** Our dedicated vehicle systems engineering team uses advancements in technology to develop customized solutions for waste industry challenges
- **FM Approved** FM tested and approved for mobile equipment and vehicle fire suppression protection



The **KODIAK** Advantage - *Stored Pressure Agent Cylinders*



Dry Agent Cylinders



ICS Liquid Agent Cylinders



Why *Stored Pressure*?

- Prevents moisture from entering the cylinder and contamination of the fire suppression agent
- Agent is fluidized and ready to go when needed; no need for delays while the cylinder is being pressurized from an outside source
- Stored pressure cylinders have a pressure gauge which allows maintenance personnel to verify readiness
- Stored pressure cylinders can also be fitted with a pressure switch which detects a low pressure condition and notifies the operator via the control panel

Vehicles are different, and so are the protection agent options

All vehicle hazards are not the same, so we offer two different suppression agent options to protect your vehicle.

- **Dry Agent Systems** - provide the fastest fire knockdown as well as getting into those hard to reach areas where fire may hide.
- **Amerex Dry-ICS Systems** - Combines the strengths of both agents and provides the best possible fire protection option by providing rapid fire knockdown with dry agent and the cooling effects of the ICS liquid agent system.



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The Amerex Advantage - Control Panel Options



Features of the 17 Series panel

- Two detection zones and one releasing zone
- 24-hour battery backup protection
- Diagnostic flash code for easy troubleshooting
- Programmable discharge and alarm relays



Features of the SafetyNet panel

- Full network ability to add additional detection and releasing zones
- 4000 event log - time and date stamped, down loadable log for easy troubleshooting and incident investigation
- Automatic Maintenance Testing (AMT) mode to significantly reduce maintenance time
- Supports natural gas detection and infrared flame detectors for combination fire and natural gas detection systems
- 24-hour battery backup protection



Features of the AMGaDS IV Panel

- From 1 to 4 gas detection zones
- Easy Installation and service
- Low Power consumption
- Auxiliary LED dimmer input
- Factory calibrated gas sensors

The Amerex Advantage - Fire Detection Options



Linear Heat Detection cables have long been the industry standard and provide a continuous heat detection cable that runs inside the hazard area. The Amerex Advantage has amped up the traditional cable with a more robust abrasion resistant outer jacket and factory-installed connectors for reliability and ease of service. The cable is also available with a stainless steel wire protective covering for extreme environments.



Spot Heat Detectors are available in three different preset temperature settings for flexibility and provide rapid heat detection and system activation. Spot Heat Detectors have factory installed connectors for reliability and ease of installation and service.



When you need the flexibility to provide Linear Heat Detection cable for harsh environments and Spot Heat Detection for critical areas needing fast response, the Amerex control panels have the ability to combine detection methods.



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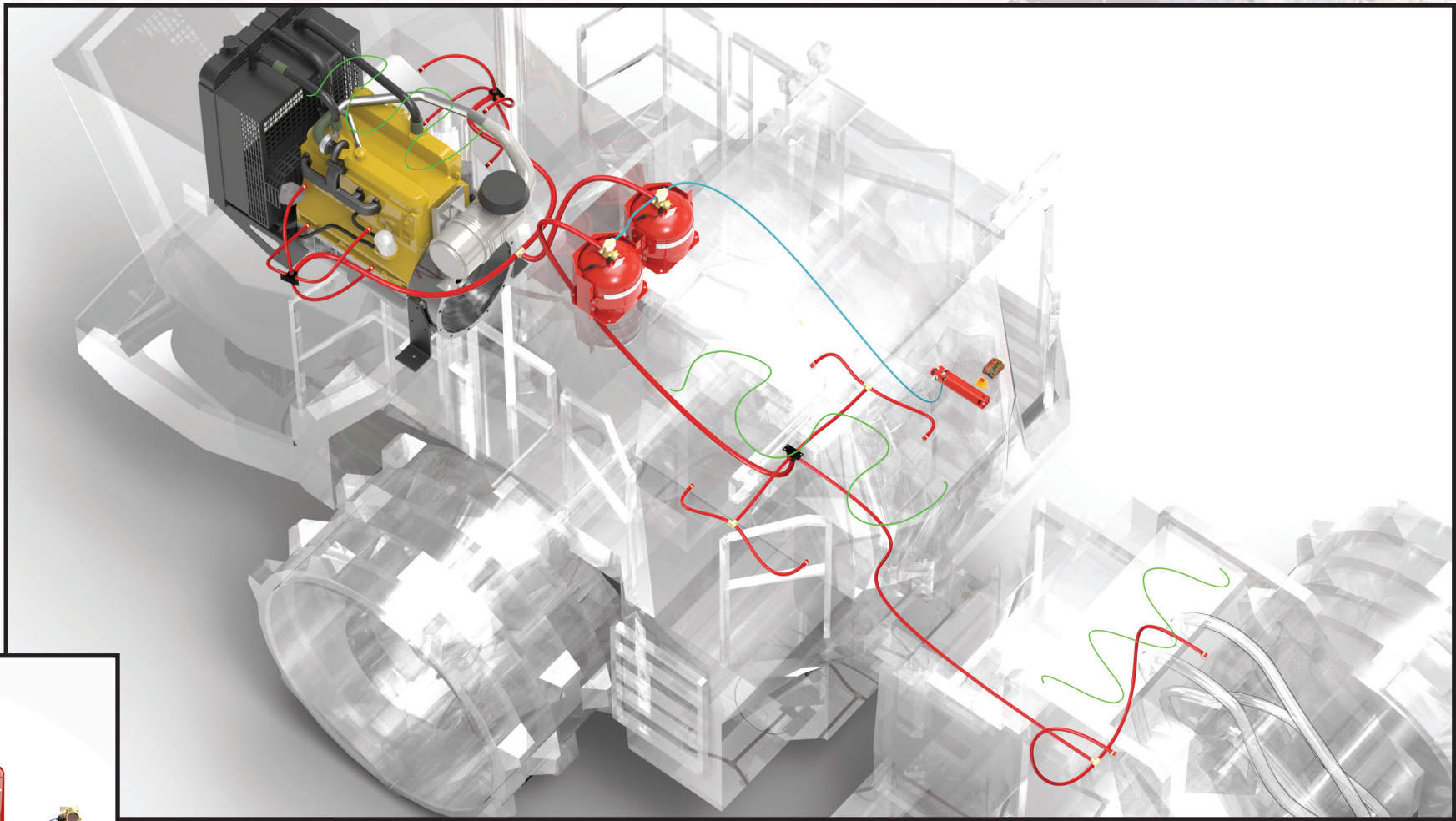


APPROVED



Single Release Sequence of Operation

- Fire starts in the machine releasing significant amounts of heat.
- The detectors sense the heat and send a signal to the control panel.
- The control panel interprets the signal and begins the discharge sequence, activating the alarm relay for shutdowns.
- The operator may choose to activate the manual release located in the cab or at ground level at any time to begin the discharge sequence.
- The linear actuator receives the signal from the control panel and opens the cylinder valve. The fire suppression agent travels through the distribution network to the nozzles which disperse the agent.
- The fire is suppressed, allowing for personnel to evacuate the machine and utilize hand held fire extinguishers or other methods, if necessary.



Amerex Vehicle Fire System Features

System Control Panel

The Control Panel (CP) is the “brains” of the system. The CP interprets the signal from the detection circuit, initiates the cylinder discharge, and simultaneously operates relays which can be used to stop the flow of flammable fuels.

Automatic Detection

24-hour automatic sensors rapidly detect heat from a fire and signal the CP to start the discharge sequence, suppressing the fire and minimizing the damage.

Agent Cylinders

Stored pressure agent cylinders hold the suppression agent in a pressurized state, preventing agent contamination and reducing maintenance costs.

Distribution Network

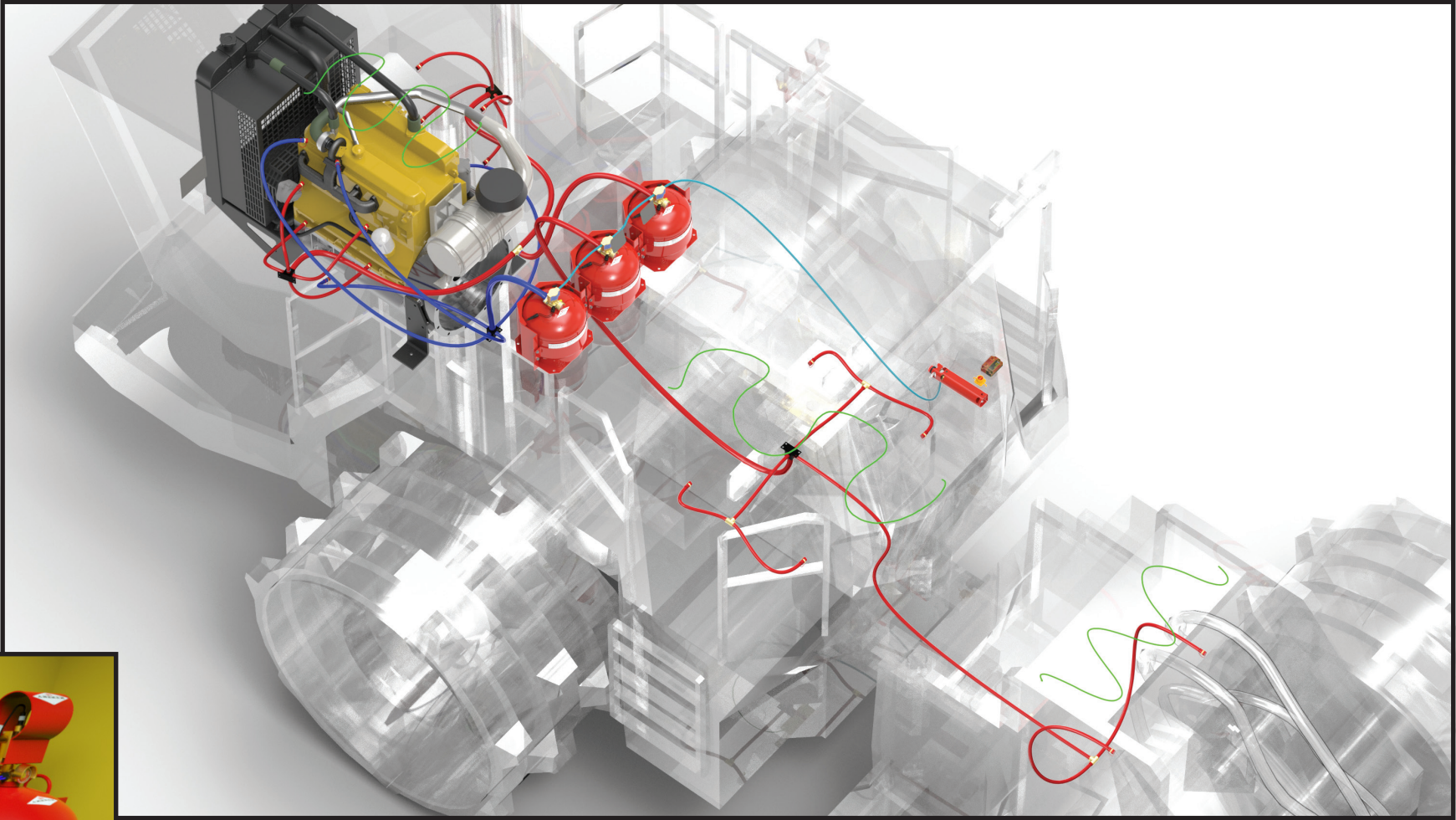
Hydraulic hose or stainless steel tubing distributes the fire suppression agent to the discharge nozzles which disperse the chemical throughout the hazard area.

System Actuation

All systems have the capability to be actuated electrically, pneumatically, or as a redundant system featuring both electric and pneumatic actuation.

Dual Release Sequence of Operation

- Fire starts in the machine, releasing significant amounts of heat.
- The detectors sense the heat and send a signal to the control panel.
- The control panel interprets the signal and begins the discharge sequence activating the alarm relay for shutdowns.
- The operator may choose to operate the manual release located in the cab or at ground level at any time to signal the control panel and begin the discharge sequence.
- The release begins when the linear actuator receives the signal from the control panel and simultaneously opens the dry chemical cylinder and liquid cylinder valves. This allows the fire suppression agent to travel through the distribution network to the nozzles which disperse agent, providing rapid fire knockdown with the dry chemical and suppression and cooling with the ICS liquid system.
- The dual release system can also be configured to provide a time delay between the dry chemical release and the ICS liquid release.
- The fire is suppressed, allowing for personnel to evacuate the machine and utilize hand held fire extinguishers or other methods to extinguish the remaining fire if necessary.



Amerex Vehicle Fire System Features

System Control Panel

The Control Panel (CP) is the “brains” of the system. The CP interprets the signal from the detection circuit and initiates two separate discharges of the dual agent cylinders. The CP controls relays which can be used to stop the flow of flammable fuels.

Automatic Detection

24-hour automatic heat sensors rapidly detect fire and signals the CP to start the discharge sequence suppressing the fire and minimizing the damage.

Agent Cylinders

Stored pressure cylinders hold the fire suppression agent in a state that prevents contamination thus reducing maintenance costs. The initial discharge of dry chemical agent provides for rapid fire knockdown. The second discharge of wet agent provides cooling of the heated surfaces to reduce the possibility of re-ignition.

Distribution Network

Hydraulic hose or stainless steel tubing carries the fire suppression agent to the discharge nozzles and disperses the chemical throughout the hazard area.

System Actuation

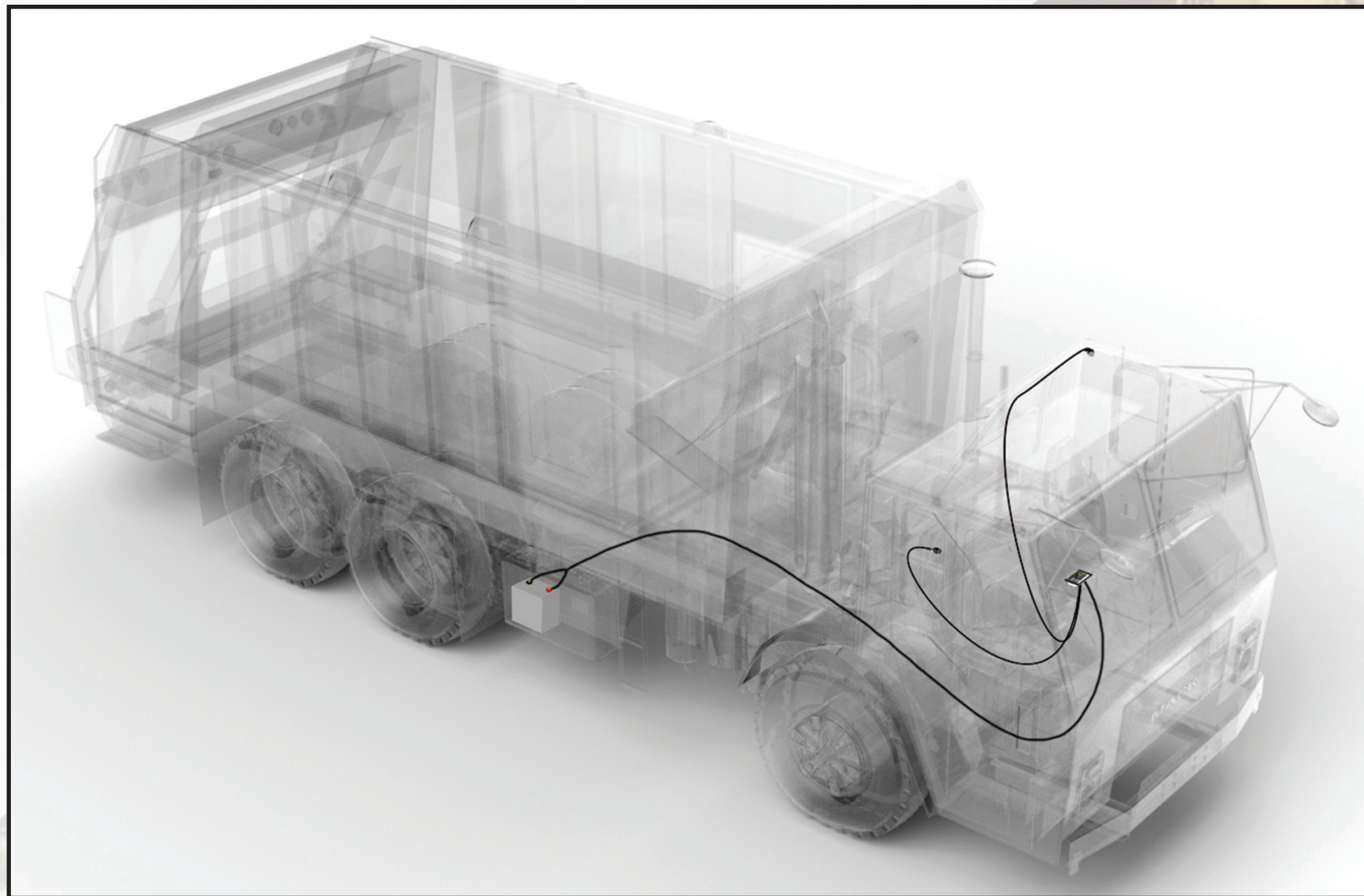
All systems have the capability to be actuated electrically, pneumatically or as a redundant system featuring both electric and pneumatic actuation.





Protecting the Vehicles Protecting the Environment

- The Waste industry has taken great efforts to become more environmentally friendly. As part of that effort more and more municipal fleets are turning to alternative fueled vehicles. Protecting operators and the environment is Priority #1, which is why Amerex has developed our AMGaDS Gas Detection System.
- Developed in the early 90's, more than 50,000 AMGaDS systems are in operation today.
- The AMGaDS system utilizes advanced technology for detection of propane (LPG), CNG (Compressed Natural Gas), LNG (Liquid Natural Gas), and any other hydrocarbon fuel vapors. Amerex AMGaDS Gas Detection System provides you with piece of mind.



AMGaDS Gas Detection System Features

System Control Panels

The Control Panel (CP) is the “brains” of the system. The CP interprets the signal from the Gas Sensors, initiates Trace or Significant gas alarm conditions to notify the operator and simultaneously operates relays which can be used to stop the flow of explosive fuels.

Gas Sensors

24 hour automatic sensors rapidly detect the presence of combustible gases and sends a “Trace Fault” signal to the control panel when the concentration of gas reaches 20% of the LEL (Lower Explosive Limit) and sends a “Significant Alarm” signal when the concentration reaches 50% of the LEL.

Wiring Harness

All wiring harness connectors for the AMGaDS system are terminated at the factory for quality assurance and ease of installation. The “plug and play” cables are available in a wide range of sizes to meet your specific need.

Gas Sensor Sequence of Operation

- A combustible gas leak occurs on the vehicle
- The detectors sense the concentration of explosive gas and sends a signal to the control panel.
- The control panel alerts the operator by audio and visual signal to the gas leak condition.
- If the concentration reaches the “significant” alarm level (50% of the LEL) the control panel goes into alarm and activates the alarm relay for shutdowns.
- The operator can bring the vehicle to a safe stop and investigate the source of the alarm.



Note: The illustrations shown within are conceptual only and not intended for system design. A complete hazard analysis and risk assessment should be performed on the vehicle to determine the most probable ignition sources; along with the fire characteristics and quantity of the various fuels exposed to those ignition sources. Final placement of the fire suppression components should be based on the hazard analysis and in coordination with the end user.



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