

# Applications Case Study

## Engine Test Facility

### The Challenge

A large internal combustion engine testing facility in the Far East had experienced explosive events when the amount of unburned hydrocarbons in a common exhaust manifold exceeded combustible levels.



### The Solution

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The application required the monitoring of four separate locations along the common exhaust manifold. In addition, the system had to continue to monitor for combustible gases even when the engines were not running, thereby requiring a sample draw system that would pull exhaust gases into the monitor even when the manifold was at ambient pressure. Both DC power and compressed air was available at all four designated monitoring points, and all four points were considered hazardous locations.

The customer chose a custom process stream monitor (PSM) system developed by GDS Corp. Each remote sensor unit incorporated an input filter, calibration gas input valve, 0-1 LPM flow meter and GDS-48 remote combustible gas sensor. To minimize costs, in place of a pump which would have required an explosion proof enclosure, wiring and flame arrestors, GDS Corp designed a sample draw system utilizing an air aspirator that used the available source of instrument air to create a vacuum sufficient to draw the sample into the system.



**Exhaust Monitor**

The output of the GDS-48 is a three wire bridge-style interface that was routed to a GDS Corp C2 *Quad Protector* four channel controller with bridge input card. The C2 Quad Protector provides sensor excitation voltage, calibration capability, trending and engineering units display. For this application, the system was configured with eight channel specific relays, two for each for the four sensor points. These relays were used to drive warning lights and exhaust fans that would automatically flush the exhaust manifolds should the level of combustible gases reach measureable levels.



GDS Corp supplies a wide range of process stream monitors for all applications, including pipeline monitoring for carbon dioxide, methane, oxygen, carbon monoxide, . Each unit is designed for customer requirements, minimizing costs and providing an exact solution to the customer's needs. For more information, please visit our website at [www.gdscorp.com](http://www.gdscorp.com).

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