

Applications Case Study

Offshore Drilling with MODBUS

The Challenge

Customer was designing a gas detection system for an offshore drilling rig. The project included a centralized control system, 18 hydrogen sulfide and 18 methane detectors scattered throughout the drill floor, air ducts, shale shakers, mud pits and bell nipple. The system also required a continuous uptime of 24 hours in case of power outage and a remote display at the drill-floor. Total system cost, including detectors and wiring were important considerations.



The Solution

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To minimize cost, the customer chose the dual channel GASMAX II gas monitors from GDS Corp. Each GASMAX II gas monitor features two channels, one optimized for toxic sensors and one for combustible sensors. For the ambient detectors, the customer chose dual local sensor heads. This simplified installation and maintenance as both the H₂S and combustible sensors are co-located in a single unit. A second set of detectors with separate remote sensor heads was used for detection of H₂S and combustibles in the fresh air intake systems.



For the centralized alarm and display controller, the customer chose the C1 *Protector* Controller, a multi-point, high density controller with large graphic display and full complement of alarm indicator LEDs. The fully certified (Class I Div 2) C1 *Protector* monitors each sensor and allows the user to set three independent alarm levels for each channel. In addition, the C1 *Protector* can track sensor life and keeps a 24hr trend database for each sensor. For additional safety and to provide an immediate warning to rig workers, a second C1 *Protector* was installed on the rig floor and programmed to mimic the readings on the primary controller.

To minimize system costs, all the GASMAX II gas monitors were connected to the C1 *Protector* controller via a Modbus RTU communications protocol utilizing two-wire RS-485 signaling in a daisy-chain configuration. This reduced wiring costs by alleviating home-run wires from each sensor location.



As a result of our modular design philosophy and onshore inventory, GDS Corp was able to provide this system to the customer in a very short time, and even delivering additional expansion units within 24 hours of request.

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