

REMOTE GAS MONITORING SYSTEMS

INTELLIGENT SOLUTIONS FOR THE OIL AND GAS INDUSTRY



Mobile Push Cart System

There are many facilities that need to monitor for hazardous gas leaks in areas where it is not possible to install cabling for power or signal. In these scenarios, the products must operate independently. They must have self contained power supplies and methods of sending out alarm messages when gas concentrations reach alarm levels. This becomes essential when detecting gas in areas surrounded by residential communities.

In the oil and gas industry, more exploration and production is occurring in areas that were never considered. Exploratory drilling is occurring in backyards, school yards and community parks. In many communities, well heads or pumping units are being installed within or very close to residential communities. It is important that the members of these communities feel safe and not threatened by gas exposure. To protect these areas, remote monitoring systems can be easily deployed while drilling occurs, or placed permanently while the wells are producing oil and gas.

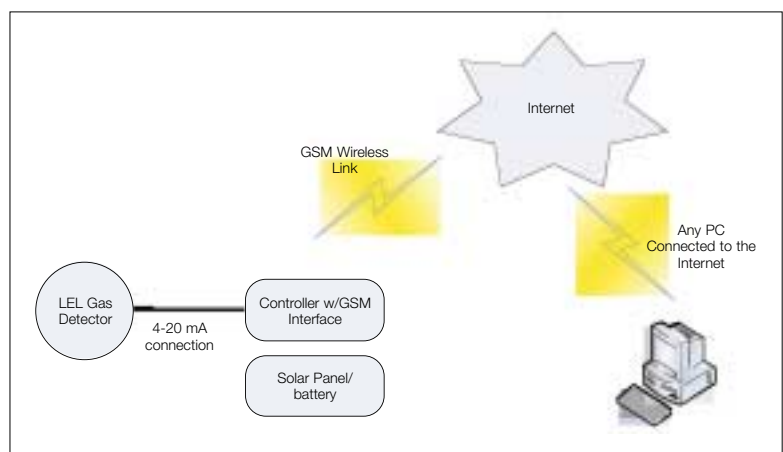
These units require no cabling and can be powered by battery packs and solar

arrays. Gas detectors are used to detect hazardous levels of either toxic or combustible gases. When alarm conditions are met, the units will dial out via an internal modem and report the alarm condition via e-mail and cellular phone to emergency response personnel. These systems can also be equipped with GPS or other sensors to measure and report wind speed, or wind direction. With this information, responders can see where the gas release is going and plan any necessary evacuations.

Industrial Scientific was able to offer such systems for monitoring several gas wells in North America. Each location required both combustible as well as toxic monitoring at remote locations within their facilities. The detector (Trans™) carries a Class 1, Division 1 explosion proof approval, and can be located in classified areas.

Sample Architecture

The gas detectors were connected via a 4-20 mA signal to a small control device that was used for remotely monitoring gas levels. The control device has 4 inputs and can monitor gas concentrations, level, flow, pressure,



“Industrial Scientific is dedicated to eliminating workplace fatalities”



Permanent Pole Mount

any 12-24 VDC. If local power is not available, an optional battery pack and solar panel can be used to power the entire system. Industrial Scientific has installed a variety of options to meet this need including permanent pole mount installations, and mobile push cart systems.

Notifications

Users can remotely access information for each site from a secure Web site. The Web site also allows the user to set up notifications that will dictate what types of events will trigger notifications. These events can include power failures, gas alarms, or any type of level or flow alarm. When an event occurs, alert notifications can be sent by e-mail and phone to multiple e-mail addresses and phone numbers.

Hardware Needed

Controller

A four-channel controller with GSM interface operates off of 12 VDC, has one output relay for local alarming, and can take any 4-20 mA input (gas detector, anemometer, pressure, etc.). The iTrans gas detector has internal relays that can be used for additional alarm relays. If more relays are required, alternate solutions can be provided.

Gas Detector and Housing

In addition to selecting a gas detector with the proper sensor configuration, the equipment can be housed in non-classified stainless steel (or NEMA 4X rate) enclosures. It can also be placed in Class 1, Division 1 rated enclosures.

Power Supply

Based on customer needs, various power supplies are available. These supplies include direct DC power sources, AC/DC power sources, batteries and solar panels.

Confidence and Assurance

All these options can be selected to meet the needs of the facility and to ensure easy integration into an existing gas monitoring program. Regardless of the options chosen, the most important thing to remember is that these systems are designed with one purpose, to

protect human life. Selecting a manufacturer that can provide quality equipment and service will also ensure the highest possible levels of safety in, around and near a facility.

About Industrial Scientific Corporation

Industrial Scientific Corporation is a global leader in gas detection equipment, software and services to protect human life in the most demanding work environments. With continuous improvements in lean manufacturing operations, engineering, and R&D, Industrial Scientific is dedicated to eliminating workplace fatalities. To achieve this goal, Industrial Scientific combines the highest quality products, the breakthrough iNet™ service to keep them in perfect working condition, and a focus on anticipating and addressing problems before they happen. Employing over 850 people, Industrial Scientific has manufacturing operations based in Pittsburgh (USA), Arras (France), Dortmund (Germany) and Shanghai (China). The company provides technical services to customers from local service centers around the world, and has additional offices in Australia, Brazil, Canada, Czech Republic, Dubai, Mexico, The Netherlands, Qatar, Singapore, Switzerland and the United Kingdom. ■

For more information about Industrial Scientific, please go to www.indsci.com



temperature, or any 4-20 mA transmitter. A unique GSM interface allows the control systems to upload information at pre-determined intervals. It can also upload concentrations or levels for each channel during alarm events. A Web interface allows key managers to view the information from any computer. Reports can be generated as well as automatic e-mail and telephone notifications when an alarm condition occurs. These systems will operate as long as there is GSM cellular coverage in the area.

The entire system (gas detector and controller) can be powered directly by