ETA Associates

News From ETA Associates

This month we're featuring two new products, and one application note. The Draeger CCTV Flame detector combines several unique capabilities - flame detection, real-time video of the scene, and immunity to the types of false alarms that are an issue for infrared (IR) and ultraviolet (UV) flame detectors. The Badger data acquisition server module allows the integration of data from both Badger's industry leading flow meters and other types of meters (temperature, carbon dioxide, electricity usage) for analysis and control applications. Lastly, our application note discusses using a gas chromatograph for ppm and ppt measurement of BTEX and Napthalene.

Look to ETA for all your analytical needs. We represent companies that continuously bring new technology, and new applications for existing technology, to market.

Draeger- DraegerFlame 5000 CCTV

This technology, first introduced in 1997, was developed to overcome the problems associated with existing infrared (IR), ultraviolet (UV), or combination IR/UV detectors. There are two inherent problems with IR,UV and IR/UV products:
- False alarms caused by reflected radiation, arc welding, hot objects, or engine exhausts.
- Blinding due to water, hot objects, reflected sunlight The DraegerFlame 5000 detects moving pixels and utilizes proprietary algorithms to identify the genuine characteristics of a fire. It has excellent false alarm immunity. Each unit can be used as a stand alone device or combined with a control system of multiple units (and/or with gas detection sensors). The DraegerFlame 5000 transmits live video images, allowing personnel to stay safely away from the flames but see what is happening. Video images can be stored for later analysis. Certified as intrinsically safe.

Sensitivity and Contaminants		FALSE ALARMS					OBSCURATIONS AND CONTAMINANTS					
		WELDING (ELECTRIC)	WELDING (GAS)	BLACK BODY RADIATION	REMOTE FIRE AREA	FLARE	OIL	WATER	FOG	SMOKE	BLACK BODY RADIATION	REFLECTED SUNLIGHT
DETECTION	UV	●	●	—	●	●	X	—	X	X	—	—
	UV/IR	○	●	—	●	●	X	X	X	X	—	—
	IR (Single Freq.)	○	●	●	●	●	—	X	X	—	X	—
	IR (Multi Freq.)	○	●	—	●	●	—	X	X	—	X	X
	VISUAL	—	●	—	—	—	—	—	X	—	—	—

KEY

●	Very Sensitive	X	Very Sensitive
○	Insensitive	X	Insensitive
—	No Response	—	No Response

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Badger Meter - Data Acquisition Model 3700

Badger Meter Inc. is a leading supplier of flow meters and related equipment. Accurately measuring flow and other instrument data is the first part of obtaining information from an application. Collecting and managing that information is the next part.

The Badger Model 3700 is a TCP/IP based DAS that allows for simple setup and configuration. Simply connect an Ethernet cable and use standard browser software to connect and configure the unit. The model 3700 also uses a standard modbus input. Data exchange on this protocol on wired devices or through the model 345WT modbus mesh network transceiver greatly expands the number of inputs that can be acquired.

Baseline Mocon - MGP Site Remediation

Environmental Monitoring for MGP Site Remediation

During the 1800s through the mid-1900s coal and oil were processed by manufactured gas plants (MGPs), to produce gas as a source of energy. These MGPs were prevalent and the equivalent of today's local gas companies and electrical power plants. During the gasification process many of the heavier, toxic by-products remained on the properties of the obsolete MGPs. For general environmental quality and economic purposes, the MGP sites are being remediated to bring them back to acceptable standards.

While the clean up takes place, it is important to insure the surrounding areas are not subjected to toxic gases and offensive odors. The way to accomplish this task is to set up a monitoring network around the site. This is done with 4 or more stations to monitor up wind and down wind conditions for parameters such as VOC's (volatile organic compounds). Once it is determined that VOC levels have reached a level of concern, it is important to determine if the VOC readings are coming from the site or an external source. To make this determination it is important to characterize the volatile organic compounds. The characterizing compounds on site for toxic gases are typically BTEX (benzene, toluene, ethyl benzene and xylenes). One of the compounds for characterizing site odor is naphthalene, which is the smell familiar from moth balls.

To be able to distinguish theses compounds at levels of concern from others in the atmosphere, it takes a piece of equipment that is both specific and sensitive. One of the best ways to accomplish this is to take advantage of the separation capabilities of gas chromatography (GC) and the sensitivity of a photoionization detector (PID). While once considered a laboratory tool, advances in electronics and automation have made it practical for this technology to make its way into the field. Baseline – MOCON's Model 8900GC for example, can be preconfigured for this and many other applications (over 200 gases). The technology becomes virtually transparent to end users familiar with monitoring techniques. For this application the analyzer is capable of detection levels in the low parts per billion (ppb). For more demanding applications such as general or urban atmospheric monitoring the high sensitivity photoionization detector (HS-PID) is available. This version measures benzene down to < 50 parts per trillion (ppt) without pre-concentrating the sample.

The Model 8900 is designed for optimum reliability, compactness and operational simplicity. The monitor's features include automatic calibration, which is ideal for unattended operation. There are a variety of industry standard outputs, such as multiple 4–20 mA or 0-20 mA, RS232, LAN (Ethernet) and multiple relays for alarms, diagnostics, calibration or user specified timed events. The product supports other detectors including a FID or TCD and a number of options such as multipoint samplers for 4, 8, 16 or more locations.

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