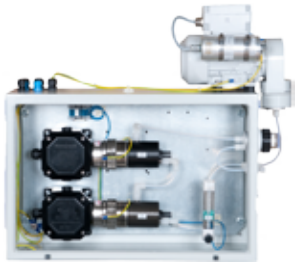
Honeywell | Industrial Safety



XPT Gas Sampling Systems

For Printing and Coating, Chemical and Petrochemical, and Automotive Industry Applications.

Gas Detection Sampling Systems

The Honeywell Expertise

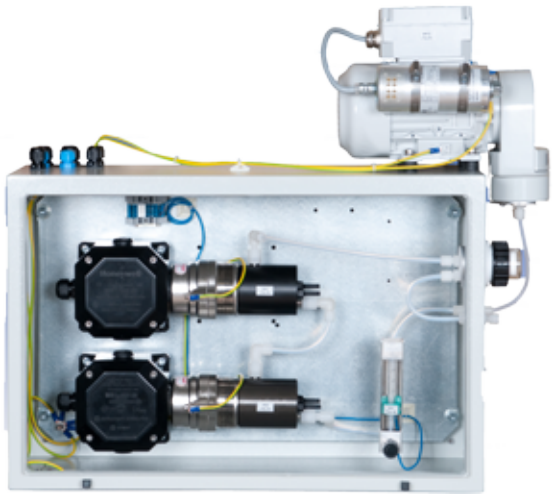
Honeywell Analytics has over 50 years of experience in the design, manufacture, and installation of gas sampling systems throughout the world in a wide range of applications.

When and Why Sampling Systems are Useful

Sampling systems are particularly useful when detection of flammable or toxic gases cannot be done by simply locating a detector in the required area. Factors preventing this may include physical location, temperature, humidity, dust, air flow and corrosive environments.

Common Applications

A sampling system can be used to precondition a gas sample to enable accurate detection in both safety and processes control type of applications.



HONEYWELL SAMPLING SYSTEMS

- *Experts in gas detection*
- *Best in class gas conditioning components and systems*
- *Monitoring hazardous gases to provide safe and efficient process operations*

SOLUTIONS FOR INDUSTRIAL FLAMMABLE GAS APPLICATIONS REQUIRING GAS SAMPLING

- *Using a wide range of Honeywell sensors for standardized systems and customized solutions*
- *Printing / Coating*
- *Chemical / Petrochemical*
- *Automotive*
- *Contact Honeywell to discuss your application*

The Advantages of Continuous Monitoring

Higher Control for Higher Profits.

By continually and accurately monitoring the levels of solvents in the atmosphere of a printing or coating machine, the process can be safely controlled, enabling throughput maximization. Several thousands of these systems are already installed in major printing and coating manufacturing facilities ensuring safety while reducing costs and increased profits.

Reduced Ventilation Rates for Lower Costs

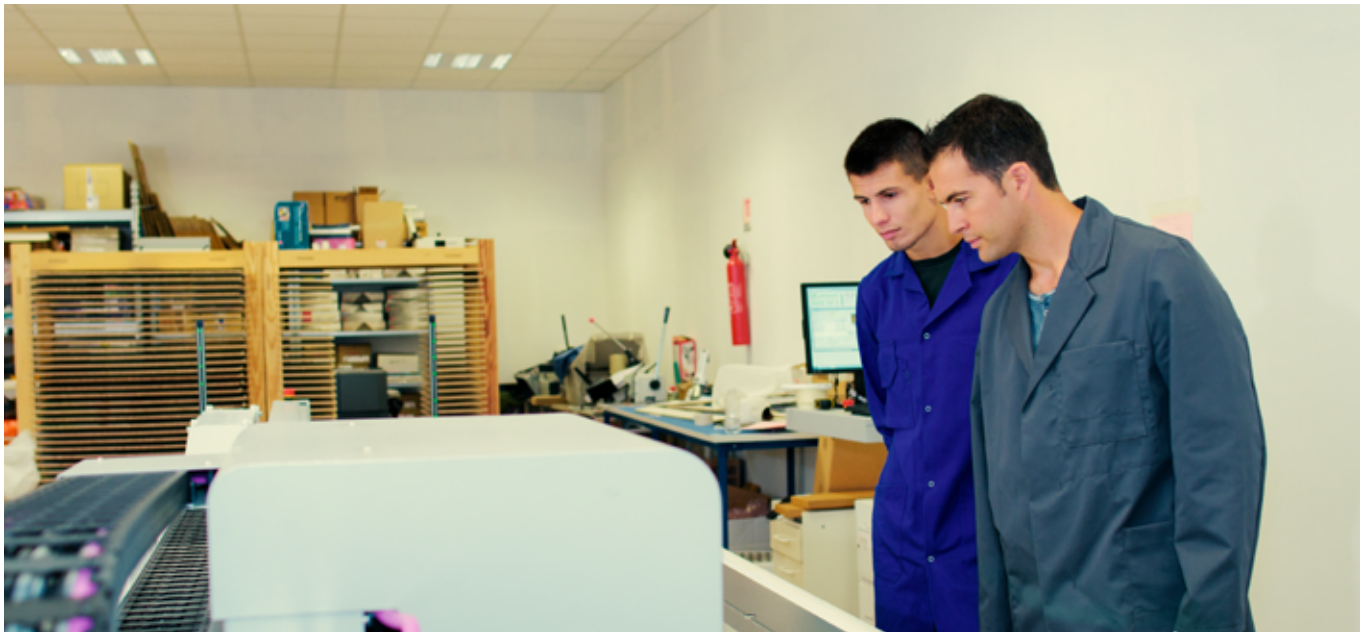
The European Standard EN1539:2009 also shows that dryers that meet the fundamental safety requirements defined and include real-time monitoring of the concentration of flammable substances can operate with increased flammable concentrations of up to 50% Lower Explosive Limit (LEL). This means that an operator who has installed a continuous vapor monitoring system can reduce the ventilation rates and thereby also reduce his costs.

Reduced Lead Time for Higher Productivity

Reduced ventilation rates can also provide large savings by reduction in size and therefore cost of the Volatile Organic Compound (VOC) cleaning system or allow multiple processes to use the same cleaning system. Alternatively, the higher allowable vapor concentrations help the operator to increase the throughput in the process, which boosts productivity and/or reduces product lead time.

Bottom Line: Safety Comes First

Most importantly, the safety of a continuously monitored system is far greater. If a failure occurs in the process that causes the concentration to rise above the defined safe levels, the system will immediately alert the operator and the process will be safely shut down.



Safe and Efficient Process Operations

Safety and Performance through Customized Solutions

Our customer support teams are able to discuss in detail the requirements of even the most demanding applications, ensuring we supply solutions that deliver the required safety and performance.

Protect your Employees and Assets

Honeywell systems are designed to measure the concentration of toxic and potentially explosive substances in locations where access and/or conditions are difficult. A gas sample is extracted from the measurement point via using a pump or venturi (air flow) method. The sample is moved through a tube to the gas detector, analyzed and passed on the exhaust.

Sampling systems help protect people and assets and ensure safe and efficient process operations. Reliable and accurate, Honeywell systems minimize the risk of false alarms and thus avoid stopping the production and wasting time and money.

Searchpoint Optima Plus Point Detectors

Honeywell has developed a range of standard sampling systems that utilize Searchpoint Optima Plus infrared point detectors for the detection of solvents in the printing and coating industries

EXAMPLES FOR THE WIDE PRODUCT RANGE		
Standardized systems	Customized solutions	
STANDARD SOLVENT MONITORING SYSTEMS • Using Searchpoint Optima • Proven to reduce costs and maximize profits • Increased safety • Compliance with legislation • Single and dual channel (parallel or serial) • Venturi or pumped sampling • Flow metering • Different solvent calibration types third party approved to EN60079-29-1 • Meets requirements of EN1539:2009 Performance Level D • SIL2 Certified to EN61508 • Contact Honeywell for other solvents	**CUSTOMIZED SOLUTION FOR AUTOMOTIVE INDUSTRY** • CO and HC detection in climate chambers • Proven sample conditioning for changing sample gas conditions • Dewpoint / moisture • Various setups possible • Application specific design • Reliable pump driven	**CUSTOMIZED SOLUTION FOR CHEMCIAL INDUSTRY** • LEL detection on a chemical plant • Application specific design • Venturi based system • With anti-frost protection • Approved to EN60079
		

Typical Applications. Printing and Coatings.

Printing Materials and Solvents

Printed materials are around us in many different forms – newspapers, product packaging, film processing, video/audio tape production, food, and groceries. Solvents are used in the manufacture of printing inks, varnishes, and other materials to be deposited.

The presses used are not limited to ink printing and also find applications in other industries such as pharmaceutical, to deposit anesthetic on a bandage for example. Solvents are both toxic and flammable. Ovens or dryers are used to remove the solvents from the finished products. During the drying process, solvent levels must be monitored and maintained below internationally recognized standards and regulations.

Safe Operation in Printing

The design specification for safe operation is defined in safety codes. These limit the solvent concentration to 25% LEL under worst case operation unless a detector is employed when that limit is raised to 50% LEL, thereby improving process efficiency.

Common Hazards

The hazardous nature of the process is typified by the close proximity of potentially explosive gases (i.e. vaporized solvents such as Acetone, Methanol, Ethanol, Ethyl Acetate, etc.) with ignition sources (drying oven surfaces or overheated bearings) and combustible materials (e.g. paper) in large volumes. The potential for catastrophic failures of plant is high with a significant risk to human life due to their close proximity in working.

TYPICAL APPLICATIONS AND SOLVENTS		
Printing (packaging)	80% of print	Ethanol/Ethyl Acetate 1:1
Printing (catalogue)	10% of print	Propanol/Butanol 1:2
Printing (newspapers and other)	10% of print	Toluene, Acetone, Hexane
Coatings/Conversion		Acetone, Hexane, Toluene, Xylene
		MEK, Methanol
Other (cleaning, manufacturing, etc.)		Toluene, Plus the above

Sampling Systems for Climate Chambers

In the automotive industry new materials must be tested to ensure their lifespan and liability can be approved before use. To achieve this, sample systems for climate chambers are sued to detect components such as CH4, H2, CO or Lower Explosive Limit (LEL) control.

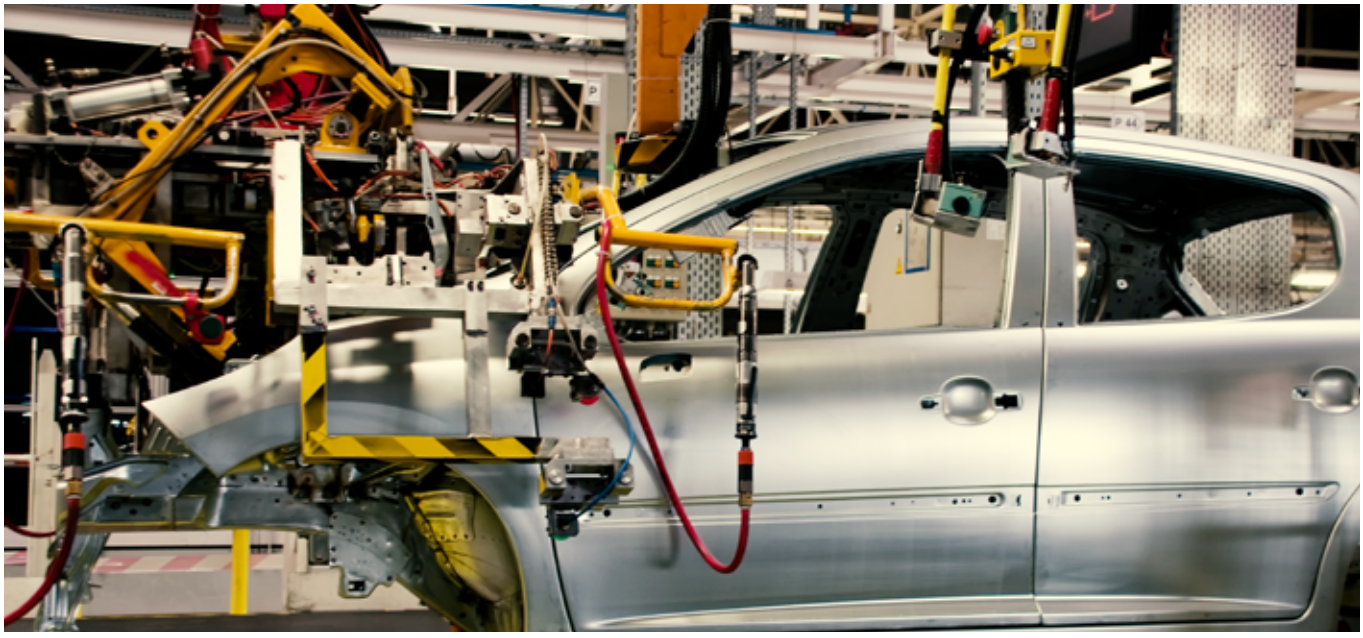
Solutions to Detect Toxic or Flammable Gasses in Climate Chambers

As samples are taken inside the chamber from different sample points, the gas streams are completely divided (each stream has its own cooler and own sample gas pump). Each sample will be taken from the chamber and passed through a sintered stainless steel fiber. The first part of the process involves a sample gas pump sucking the sample from the chambers. Following this, the sample will be changed to the system along with a cooler to remove the humidity from the sample gas. A moisture detector will detect moisture in the sample gas and switch off the gas pump if the moisture content is too high. A capillary tube makes a laminar flow through the sensor to avoid problems with calibration, and a flow meter enables adjustment of the flow through the sensors.

Honeywell Sensepoint Sensors

These sample systems are designed for indoor installation in safe areas for climate chambers. Honeywell Sensepoint sensors are controlling the HC and CO content inside climate chambers which have the following range:

PARAMETER	MIN	MAX
Temperature	-40°C	+80°C
Rel. humidity	Dry	99 %
Air pressure (high meters)	0 m	4500 m



Sampling Systems for Chemical and Petrochemical Plants

Process streams in the chemical and petrochemical industry can accrue in a variety of conditions. Creative and reliable solutions have to be found to detect toxic or flammable gases in these demanding circumstances.

Solutions to Detect Toxic or Flammable Gasses in Petrochemical Plants

In some cases these systems need to be designed with sample conditioning to provide a dry and clean gas to the detector. They can be specially used for detection in tubes. Mostly these systems will be installed in classified areas such as declared for zone 1 or zone 2. For detection in storage tanks the system need to be designed for taking a sample from zone 20 inside the tank and installation in classified areas zone 21 or zone 22.

Use Case Scenario – LEL Detection

This is an example for an LEL detection from 3 ducts with an XNXTM transmitter and Searchpoint Optima Plus. Due to the inaccessibility of the sampling points, a sampling system was necessary. The samples will be taken with injectors (Venturi-principle) to allow for reliable detection. Since the sampling system is installed in outdoor conditions, anti-freeze heating is required to prevent frost and condensation. Additionally the sampling lines are self-regulated and heated up to 65°C to avoid freezing from the sampling point to the system.

PARAMETER	MIN	MAX
Tube Temperature	40°C	60°C
Outdoor Temperature	-10°C	30°C
Tube Humidity	80%	95%

Honeywell Analytics Gas Detection

Honeywell Analytics is able to provide gas detection solutions to meet the requirements of all applications and industries. Contact us in the following ways:

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