

## HONEYWELL REBELLION GCI SYSTEM

### Product Information Note

**The Honeywell Rebellion Gas Cloud Imaging (GCI) portfolio is a platform of intelligent, automated visual monitoring solutions designed to help industrial organizations safeguard their personnel, the site, and the environment. The use of versatile, hyperspectral gas imaging provides plant operators with reliable, intelligent information about gas leaks, including the type, size, and direction of the plume, so that they can react accordingly.**

For upstream and downstream operators in the petroleum industry, and other firms in the process sector, gas leaks pose a significant risk. The primary hazards at process facilities are fires, explosions, and acute exposure to toxic gases. Escalation of accidental material releases can result in multiple fatalities or injuries, as well as loss of infrastructure critical to the business and economy.

Traditional gas detection methods offer little information about the location of the leak source, the shape of the gas cloud, or its direction and speed of dispersal. This lack of information on gas leak location requires dispatching personnel to the operating site.

Honeywell has made significant strides in advancing gas imaging technology. Our Rebellion Gas Cloud Imaging (GCI) solutions use proprietary hyperspectral imaging coupled with machine learning analytics to pinpoint the gas leak source, determine the shape of the gas plume, and measure the concentration of a leak. GCI is the industry's next generation for gas leak monitoring.

Providing an additional plant safety layer, the Rebellion GCI solutions offer the following features:

- Complete platform encompassing gas cloud visualization
- Scalable (100 m to 1700 m) measuring range suitable for harsh temperature environmental conditions (-40°C to +55°C)
- Broad spectrum of detectable gases with the capability to detect up to 7 different gases concurrently with one GCI system

Honeywell Rebellion GCI is a snapshot hyperspectral infrared imaging system with an inherent speed of response of less than one second plus scan and dwell time. The system meets safety requirements for monitoring and detection of hazardous releases of flammable and toxic gases, thereby providing verification of gas safety system alarms with location, size, and gas concentration and early indication of large leaks that could, if unattended, lead to business disruption. It meets emissions requirements by enabling targeted maintenance and reduction of losses, thus making it possible for operators to build and improve their energy programs.

### FEATURES & BENEFITS

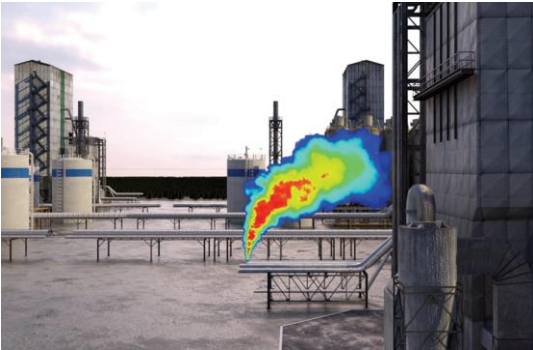
- Real-time, 24/7 monitoring
- Fully automatic alarms with audible alerts, email and/or SMS notification
- Multiple detection ranges
- Robust emissions data visualization
- Operation from standard 24 Vdc or 48 Vdc power supplies
- Optional pan and tilt camera head
- -40°C to +55°C (-40°F to +131°F) operating temperature range
- Video output of IR and Visible images at 15Hz minimum frequency
- Optional Modbus TCP/IP for connection to site systems
- Reduced risk of unplanned downtime
- Faster response to gas leak events
- Lower cost of carbon credits and potential fines
- Elimination of additional gas detection equipment
- Decreased operational downtime



*Honeywell Rebellion GCI is a state-of-the-art, robust solution for the harshest industrial environments.*

## Powerful Imaging Technology

Several gases have a unique emission or absorption signature in the long-wave Infrared spectrum, known as the fingerprint region, which makes it possible to differentiate them. Honeywell Rebellion GCI's powerful spectral imaging engine, with a patented sensor design, analyzes hyperspectral data from every pixel of the image at a rate of 60 times per second to identify more than 50 gases. The camera resolves the gas leak in the form of a visual cloud, which is captured on video. It also depicts the size of the gas cloud and the direction that the plume is moving.



Honeywell's proprietary hyperspectral imaging technology provides comprehensive information and visualization of potential gas leaks.

Gas imagers integrated into a fire and gas or process safety system can produce an alarm upon detection of a hazardous gas cloud and alert personnel via email or text. An operator can then take targeted first responder actions using the data from the system, providing an effective response to the event. Alarm and video events are recorded and stored for later access, analysis, and reporting, and alarm levels can be adjusted for particular site needs.

## Advanced Monitoring Devices

With a pan, tilt, and zoom (PTZ) feature, Honeywell's gas cloud imaging solutions cover a large, preprogrammed area and quickly move to any area of interest.

Honeywell's GCI cameras analyze the long-wave Infrared spectrum to monitor, quantify, and display explosive and toxic gas leaks as they occur. The self-calibrating hardware operates continuously, delivering precise imaging of gas clouds, gas speciation and concentration.

The Honeywell Rebellion GCI standard camera is intended for large outdoor sites like pipelines, ports, refineries, and tank farms. Featuring automated pan/tilt motors for full coverage of the facility and offering a range up to 1,700 m (5,577 ft.), a single gas imager can monitor large sections of a process facility.

The Honeywell Rebellion Mini GCI camera delivers safety and enhanced emissions monitoring for smaller operations such as gas compressor buildings. This compact device can detect gas clouds as far as 100 meters (325 ft.) away.

## Robust Analytic Software

Combining the latest advancements in data science, optical physics, and artificial intelligence, Honeywell Rebellion GCI real-time monitoring analytics are the most advanced and deliver smarter, faster, and more accurate information. The analytics can be customized to meet unique application requirements.

Rebellion's proprietary, artificial intelligence (AI)-driven software platform, Spectra, manages the analytics through its own user interface and displays real-time video footage. A dedicated server has an extraordinary storage capacity and processing power, as well as cloud solution options. The software is capable of managing up to 4 TB of data daily from multiple GCI cameras.

Operators can oversee camera feeds and adjust camera movement as needed through a distributed control system (DCS). They don't need to monitor the cameras continuously as alert levels are built into the software.

## Complete Technical Support

Honeywell provides a complete site assessment, installation, commissioning, and training package with the Rebellion GCI system. Technical support is available after the installation is complete and the system can be maintained at peak uptime and performance with an annual maintenance service agreement.

## Improved Overall Performance

As a powerful addition to traditional layered gas detection safety instrumented systems, Honeywell Rebellion GCI is the answer to making industries more profitable. By identifying smaller leaks early, the system drives targeted maintenance to further address potential safety issues, extend the life of equipment, improve energy efficiency, and deliver robust emissions control.

The primary benefits of the Rebellion GCI solution include:

- Safety-related cost savings due to:
  - Fast, accurate, and targeted response to hazardous material releases, preventing or reducing the consequences of accidents
  - Safeguarding plant assets, personnel, and the environment, reducing fiscal risks
- Emissions-related costs savings due to:
  - Instantaneous identification of product leaks, thereby enabling operators to preserve valuable inventories of finished goods
  - Reduction in punitive fines and penalties from Authorities Having Jurisdiction (AHJ)

### *A Unique Gas Cloud Imaging Solution*

*Honeywell Rebellion GCI offers intelligent, automated gas cloud visualization through hardware monitoring devices, software, and analytics.*

### ***Designed for Demanding Industry Applications***

*The Honeywell Rebellion portfolio of turnkey gas cloud imaging solutions addresses a wide range of industrial safety and emissions applications.*

With Honeywell Rebellion GCI, industrial organizations can ensure enhanced safety and emissions control due to verified early leak detection, including location, sizing, and instant visibility of gas cloud movement to plant operators to enable prompt intervention and prevent hazardous situations occurring on site. Targeted emissions management is crucial for reducing carbon footprint and emissions – enabling a green future.



Honeywell's solution enhances safety and emissions control.

Operating companies can also realize capital expense (CAPEX) reductions, since a single GCI camera can help identify equipment failures, which can lead to their prompt repair. These repairs, in turn, extend the equipment's years of service and improve asset utilization. A gas imager can also reduce the number of handheld gas leak sniffers, cameras, drones, and search vehicles.

In addition, the Rebellion GCI solution is a tool for assessing progress in a process plant's energy management system. It contributes to characterizing air pollutant emissions and driving technology choice and investments for future process technologies.

Plant operators can enable rapid response to an event as no time is wasted identifying the source – leading to improved decision making due to increased situational awareness.

### **For More Information**

To learn more about how Honeywell Rebellion GCI improves performance, visit [www.honeywellprocess.com](http://www.honeywellprocess.com) or contact your Honeywell account manager, distributor or system integrator.

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