

## One task, two systems? There has to be a better solution!

Gas detection and measurement equipment is used to keep workers safe. Fixed gas detection systems continuously measure the concentration at specific points. Portable instruments are used to monitor the atmosphere in the vicinity of the worker.

Traditionally there has been very little integration between fixed and portable instruments used at the same site. Workers may not become aware of a hazardous condition until their own instrument starts to respond - even though transmitters and instruments being used in other areas are already in alarm. This no longer needs to be the case.

With RF modules enabled transmitters can soon be used as portals for the integration of information from portable instruments into the overall health and safety system, allowing all the relevant information to be centrally reviewed at the same time in the same place.

Two way, real-time communication means workers, managers and emergency responders can be notified immediately when there is a safety concern. Sirens and area alarms, as well as personal instrument alarms and messages can be used in an integrated way to ensure the correct response.

### Why has this never been done in the past?

Lack of bandwidth! Technical limitations such as requirements for explosion protection, penetration of artificial and natural structures, and the availability of wireless infrastructure severely limited the amount of information that could be included in the communication stream.

### Step 1: ACDC

With the invention of ACDC, GfG has created the possibility of communication over over fixed 4-20 mA systems with bandwidth near equal to that of digital bus systems. From the standpoint of the monitoring center, all of the original analog information is still available plus the additional service, status and diagnostic information available through ACDC, greatly improving safety and efficiency.

### Step 2: Integration of mobile devices

Addition of RF transmitters will open up the possibility of using transmitters as communication points for portable gas detectors. With the addition of a radio module, they can become base stations for two way communication of readings, alarms and status information between the portable device and the control center.

### Result:

All the relevant information from both fixed and portable instruments is available centrally and in real time. In the event of an alarm, appropriate measures can be initiated immediately and more effectively.

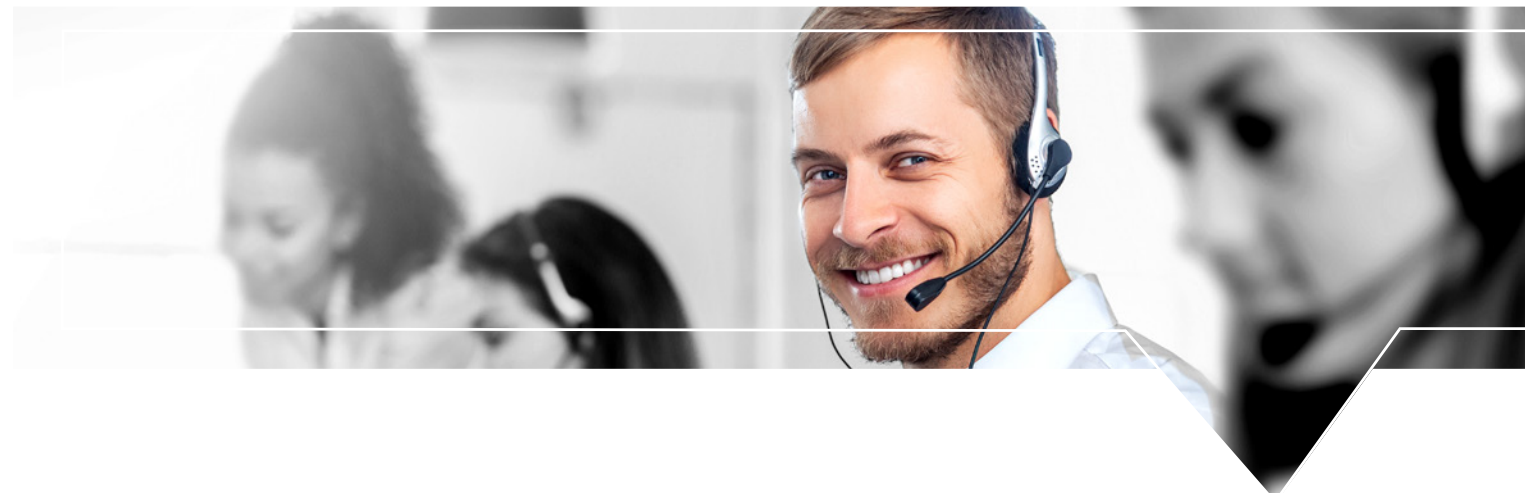
Integrating the input from multiple sources provides crucial additional information. Portable gas detectors can help pinpoint hazardous conditions during emergency response and rescue procedures.

Information logged during routine operations is useful as well. Monitoring events can be noted, evaluated, and underlying causes can be corrected. Monitoring records can help verify compliance with regulatory requirements.

Time-stamped readings can be used for statistical evaluation, predictive analytics, optimization of maintenance intervals, and prevention of production downtimes.

GfG is in the forefront in the process of integrating fixed and portable gas detectors. We are working closely with customers and partners to develop and implement additional capabilities. Our goal is to enhance safety and provide economical solutions based on the enhanced flow of real-time information.

The way there: Working side by side with our customers.



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What if portable and fixed gas detectors  
were no longer separate systems?



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GasDetection  
Technologies **GfG**

**ACDC**<sup>®</sup>  
smart Communication Technology

smart  
GasDetection  
Technologies **GfG**

# ACDC<sup>®</sup>

smart Communication Technology

ACDC (Analog Carrier for Digital Communication) is an innovative low-power communication technology perfect for use in Hazardous Locations.

Adding ACDC communication lets you raise the informational content of transmitters in direct wired analogue (4–20 mA) systems to the level of bus systems – and beyond.

A particular advantage of the patent pending ACDC technology is that it can be incrementally added to existing 3-conductor, hard-wired 4–20 mA analog systems. There is no need to tear out the old system to radically improve the bandwidth and quality of the information.

# Integration of fixed and portable gas detectors even in 4-20 mA systems

## More than the sum of its parts

Integration of stationary and portable gas detection offers immediate and tangible benefits.

It is not a vague promise of potential synergies but of a practical increase in safety, productivity and knowledge.



### The cloud

Isolated data sets and „silos“ are bad! Data gains value as a function of combination with other information and targeted analysis. The place for this is in the “Cloud”. At GfG, our future goal is for all of our fixed and portable gas detection information to be available in real-time via Cloud based integration and analysis. It can be a “private” cloud, a “public” cloud or a mixture of the two.

Cloud based data storage and processing facilitates integrating, using, analyzing and selectively sharing information.

Whether the information is needed for compliance, evaluation, maintenance, improving operational efficiency, or keeping track of individual workers; it is our goal to provide it to our customers where it is needed, when it is needed, and processed in the most useful possible way.



### The controller

Controllers are the local control center and data hub of integrated gas detection systems. They turn the data from transmitters into actions. In turn, controllers allow the collected information to be further stored or evaluated by a higher order processing or data center. GfG offers a wide range of controllers for various applications.

The options range from easy-to-install stand-alone devices to solutions, to controllers used for larger systems like underground garages, to huge systems with hundreds of transmitters, and thousands of relays that are used in chemical plants, mines and large industrial facilities. GfG systems are based on controllers and easily scalable modular components that can be used for complex application specific systems.

The GfG family of controllers are technologically advanced, electronically robust, and extremely flexible control platforms for gas detection and hazard notification systems.



### The transmitter

Transmitters include the actual sensor used to measure the atmospheric condition, as well as the associated local electronics used to process and transmit the measurement information. Fixed system transmitters are positioned at the strategic points where it is most important to measure the hazard.

Environmental variables such as the density and source of the gas, the measurement technology, the hazardous classification of the area, SIL requirements, the distance between the controller and the transmitters, and the means used to connect the transmitters all help to determine the system architecture. Systems may include locally controlled groups of transmitters, or transmitters may be connected to a single central processing center. Connection may be via industry standard 4-20 mA, or via digital bus. All of these solutions are available from GfG!

Retrofitting existing systems with ACDC is easily possible without the need for replacing or changing the method of wiring.



### Portable gas detection devices

Portable atmospheric monitors are used daily by hundreds of thousands of workers. Use of portable gas detectors is mandatory in many industries and at many facilities. GfG portable atmospheric monitors are durable, dependable, accurate safe and affordable. They are also the most compact and functional instruments on the market today.

Even though the gas detector’s alarms are primarily intended to alert the user, alarm information from any instrument is of vital interest to other members of the team, as well as supervisors and rescue team members who are involved in managing and responding to emergencies. To be successful, rescue efforts need to be initiated immediately, and coordinated flawlessly. Everything hinges on the speed of response and making the correct decisions.

This is why it is so important to integrate information from individual gas detectors in the local area, as well as at centralized decision making level. Gas detectors are not simply personal protective equipment. They are an element in the overall flow of safety information at the facility.



### The TeamLink

Is an intrinsically safe, self-contained wireless server used to display, coordinate and manage monitoring and status for groups of up to 10 wirelessly enabled portable gas detector users. No computer required!

Besides providing the supervisor with status and alarm information for the workers in real-time, the server is also able to transmit information from the local network to rescue teams and centralized decision making authorities. Improving the quality, and speeding the flow of safety information through the system substantially improves worker safety, and the likelihood of a successful response in the event of an emergency.

The TeamLink communicates by means of a dependable wireless RF transmitter with 868 MHz (Europe) or 915 MHz (America). The intrinsically safe TeamLink server carries the same certifications for Intrinsic Safety as the portable instruments. The server can be positioned within the hazardous location for real-time communication with a base station or responders outside of the hazardous location perimeter.

## Partner for system planning Provider for service and maintenance

GfG would be delighted to help design a gas detection integration solution that fits seamlessly into your existing security concepts and production processes.

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As your service partner, we then ensure legally compliant maintenance and smooth operation. Your contact at GfG will be happy to put together the service package that suits you best.



ACDC



## One-stop Solution



consulting



commissioning



service



training