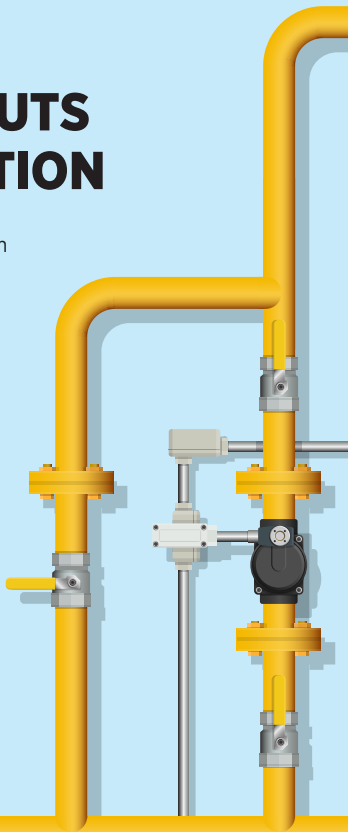




THE INS AND OUTS OF GAS DETECTION

A well-functioning gas detection system is an invaluable part of maintaining safety wherever gas is used. To achieve maximum safety, there are several factors you need to consider. Read on and let us give you an introduction into the world of gas detection.





WHY IS GAS DETECTION NECESSARY?

Most commonly used gases, such as natural gas or Liquefied Petroleum Gas (LPG, a mix of propane and butane) are invisible to the naked eye and highly explosive under the “right” circumstances. To aid in detection, a strong-smelling odorant is added to the – otherwise odourless – gas. This allows the human nose to act as a gas detector.

There are several reasons why the human nose is not enough, however:

- A properly installed and maintained gas detection system can detect leaks faster and more reliably than the human nose. The sooner you can act, the easier it is to limit the amount of leakage.
- Someone might not always be present when a leak happens. It can happen overnight.
- Gas can be heavier or lighter than the air in the room. This means that it will concentrate near the floor or the ceiling, where it may be out of reach of your nose.

KNOW YOUR EXPLOSION LIMITS

A combustible gas leak becomes an explosion hazard when the ratio between the gas and the atmospheric air in the room allow it to ignite. If there is too much air, the gas is not concentrated enough to pose a threat. If there is too much gas, there is not enough oxygen to support an ignition of the gas. In other words, when the volume of gas in a room is within certain percentages (Known as the Lower Explosion Limit (LEL) and the Upper Explosive Limit (UEL)) of the atmospheric air, it has the necessary conditions to ignite and explode if there is a spark.

Here are the explosion limits for a few of the more common combustible gases:



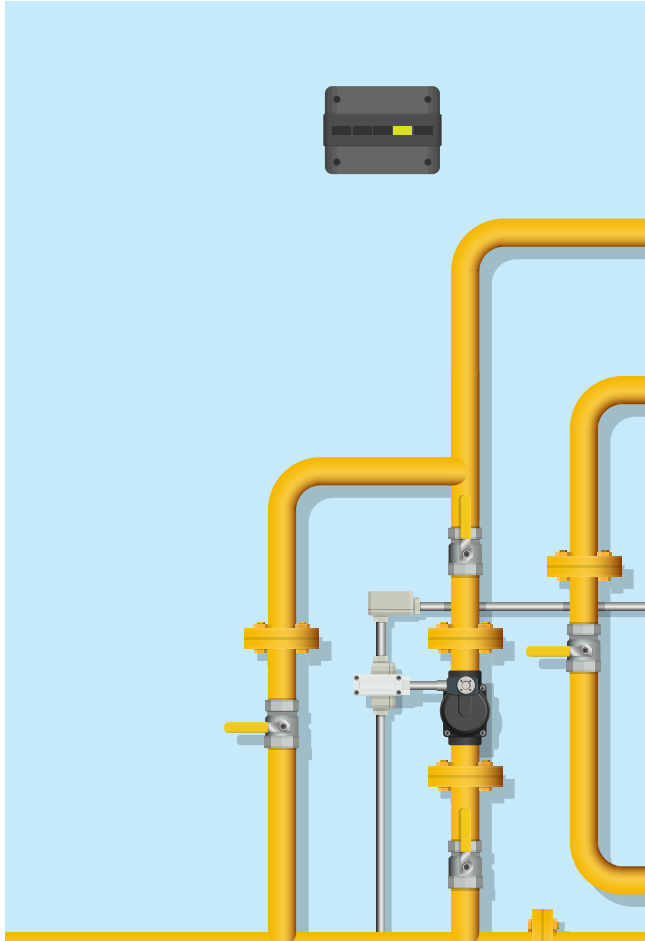
- Propane: 2% to 9.5%
- Butane: 1.5% to 8.5%
- Methane (Natural gas): 5% to 15%
- Hydrogen: 17% to 56%*
- Ammonia: 15% to 28%

**Even outside of this range, hydrogen is still flammable in concentrations between 4% and 75%.*

Note: Even if the concentration of gas is not within its explosive limits, it can still present a danger when inhaled – either because the gas is toxic or because it has displaced the oxygen in the air, making it impossible to breathe.

Types of gas hazards	
	Explosive/combustible: Can combust if ignited in certain mixes of air
	Toxic: Exposure is harmful to human health
	Oxygen deficiency: Displaces oxygen in the air

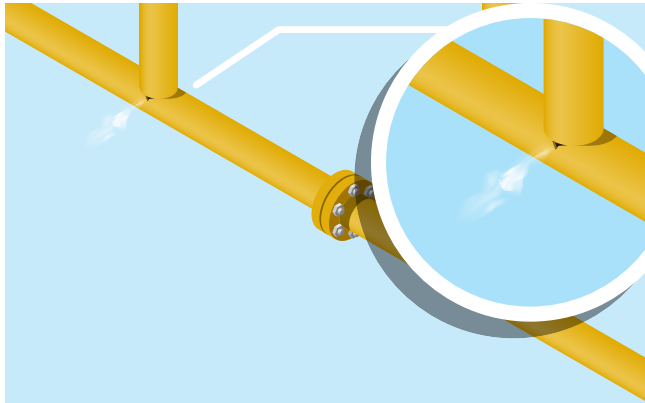
Gas detectors normally close the safety shut-off valve when the gas reaches 20% of the Lower Explosion Limit – in due time to avoid an explosion!



WHERE IS GAS DETECTION IMPORTANT?

Wherever there is even a slight risk of a gas leak, it is crucial to have a well-functioning gas detection system in place. They are not, therefore, limited to businesses that handle or consume gas. Many schools, for example, use LPG for burners in laboratories.

One good rule to go by is this: If there is a gas flange, coupling or valve in the room, that room has a potential leak risk and should be fitted with one or more gas detectors. In general, wherever 2 separate parts connect to each other in a gas system, a gap can appear that lets out a small or large amount of gas. Basements and rooms with open flames or limited ventilation require special attention!



How did the leak happen?

When leaks occur, it is often due to one of the following:

- Improper installation
- Lack of maintenance
- Worn-out equipment
- A faulty component
- Wrongful choice of sealant
- Human error

GO HIGH OR GO LOW?

The type of gas you use determines the proper placement of your gas detector. In the event of a gas leak, some gases float upwards while others sink to the floor.

This means that if your gas detector is wrongly placed, it may not be able to register the presence of gas before it has filled most of the room. Therefore, if your gas is heavier than air (which is the case for LPG, propane, butane) your gas detector should be placed close to the floor – and close to the ceiling if the gas is lighter than air (Natural gas/methane, hydrogen).

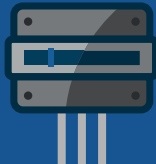
Ammonia is an example of a gas that is lighter than air, but because it absorbs moisture from the air, it eventually becomes heavier and sinks to the floor. It could be recommended to place detectors both high and low when dealing with this gas, as ammonia is both toxic and explosive.

DID YOU KNOW?

Some people get the idea to test the effectiveness of their gas detection system by holding an open gas lighter, directly under the sensor.

This is a big mistake! The concentrated lighter gas is likely to overload the sensor, ruining it or severely shortening its lifespan.

Gas sensors should be tested frequently – and only using special calibration gas/test gas (available from KC ProSupply).



SAFETY IS A CONTINUOUS PROCESS

Even if you have the perfect gas detection system installed, the sensors in most gas detectors only have an expected lifespan of approx. 5 years. If your system is older than that, it is important that you get it tested or replaced. A faulty gas sensor only provides a false sense of security, which is a serious safety hazard.

Are you unsure about your current safety situation? Then, as with all things relating to safety, there is no better time to act than now. If you think you may have neglected to check your sensors (It is more common than you may think) or you do not have any gas detection in place at all, late is always better than never.

PERSONAL OR HAND-HELD GAS DETECTORS: THE CHOICE FOR PROFESSIONALS

A personal or portable gas detector is the ideal safety tool for anyone who works in a hazardous environment. Portable gas detectors let you check for gas leaks anywhere, and personal gas detectors simply clip onto your clothing and provide you with an instant alert if you find yourself in an area with a gas leak.



Personal gas detector



Hand-held gas detector

CHOOSE THE RIGHT QUALITY OF SENSOR

For it to function optimally, the size and type of sensor in your gas detector must fit the space and conditions that it will be used in.

Domestic sensors are usually attractive in terms of price, but they are not designed for the rough conditions of industrial environments.

Industrial sensors are made for these spaces and will provide excellent safety anywhere. When in doubt, we always recommend an industrial type sensor.

Both types can be integrated in a control system for multiple sensors and shut-off valves.

WHEN IN DOUBT, ASK THE EXPERTS

We hope the information here has helped you gain a better understanding of the different aspects involved in keeping an eye on leak-ages. So what is the next step if you want to achieve the optimal gas detection setup? Get in touch with us.

Our people have the experience and know-how that makes them experts on all matters relating to gas safety. Our product range includes all kinds of gas detectors from only the most reliable and proven suppliers. No matter what your needs may be, we can help you achieve the perfect result that will keep you, your employees and your business safe.

We will be happy to guide you in choosing the right type, amount and placement of gas detectors. Call your nearest office, or send us an e-mail, and one of our gas experts will tell you all you need to know.

KC ProSupply Denmark: Tel +45 8644 8734
KC ProSupply Portugal: Tel +351 220 938 677
KC ProSupply UK: Tel +44 1792 224 000
KC ProSupply Argentina: Tel +54 (911) 3953-1717

Or send us an e-mail: kcprosupply@makeenenergy.com

HELP US FIND THE RIGHT GAS DETECTOR FOR YOU



Fill out the form below with the desired application and specifications and our experts will find the ideal model. To fill it out, mark the appropriate grey cells with an **x**.

Your name: _____ Company: _____

Your e-mail and/or phone number: _____

Send a scanned copy or PDF to kcprosupply@makeenenergy.com and we will get back to you as soon as possible.

1. What type(s) of gas do you use?							
1A	Propane	1B	LPG	1C	Natural gas	1D	Ammonia
1E	CO ₂	1F	Other (please specify)				
2. What type of sensor should your detector use?							
2A	Infrared	2B	Catalytic				
2C	Ultrasonic	2D	Other (please specify)				
3. What certifications does the detector need to fulfil?							
3A	ATEX		3B	Non-ATEX			
4. In which area do you need gas detection?							
4A	Indoors (specify number of rooms)			4B	Outdoor		
4C	Other (please specify)						
5. What signal should the detector run on?							
5A	BUS	5B	4-20mA	5C	Other (please specify)		
6. Which type of siren would you like the alarm to have?							
6A	Acoustic	6B	Flashing light	6C	Both		
7. Should the detector be able to communicate with a solenoid valve?							
7A	Yes		7B	No			
8. What type of environment will the detector be located in?							
8A	Domestic	8B	Commercial	8C	Industrial		
9. What is the lower explosive limit (LEL) of the gas you use?							
9A	Specify your lower explosive limit (LEL) in %:						
10. Please write any additional comments here:							



KC ProSupply is MAKEEN Energy's trading division. We offer a wide range of gas equipment and components along with expert guidance from the beginning to the end of your project. In that way, we provide you with much more than just a product.

Our one-stop shop philosophy makes the world of gas components as convenient and efficient as it should be. Our many warehouses around the world are stocked with products from our global network of leading manufacturing partners. This allows us to offer high-quality gas equipment at competitive prices with short delivery time.

We have decades of practical experience with design, installation and servicing of gas equipment which means that we can expertly assist you with any challenge you face. The result is an ideal and safe solution for your business – every time.

KC ProSupply

Alsvej 21
8940 Randers SV
Denmark

Tel +45 8740 3000
kcprosupply@makeenenergy.com

www.kcprosupply.com
www.makeenenergy.com

