


Application Brochure

Gas Detection for Boiler Rooms



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What is the Application?

Boiler rooms play a vital role in producing heat and energy in both homes and industrial environments but they present a number of gas hazards that require careful consideration and an appropriate gas detection system.

IGD can provide scalable solutions for boiler rooms of any size, from the small systems found in schools, restaurants and small offices to the larger boiler rooms typically found in hospitals, universities or laboratories.

It's essential that you equip yourself with a gas detection solution that's reliable, addressable, fully compliant, and backed by over a century of innovation. IGD created the world's first flammable gas detector in 1917, and we've been committed to the development of pioneering gas detection equipment ever since. As a recognised industry leader, you can rely on IGD to provide bespoke solutions for any boiler room utilising a combination of fixed and portable gas detectors, and our cutting-edge 2-Wire Addressable technology, to provide you with protection that's comprehensive, cost-effective, and hassle-free.



What is the Government Legislation?

Providing appropriate gas detection measures in your boiler room isn't just best practice; it's a legal requirement. The proper management of gas threats in a boiler room is governed by the following regulations.

At IGD we've been dealing with the management of gas threats for longer than anyone else, which puts us in the best possible position to be able to provide you with a gas detection system that's fully compliant with all regulations.

COSHH

The Control of Substances Hazardous to Health (COSHH) Regulations mandate that employers evaluate the dangers associated with using hazardous substances. This evaluation must cover plans for handling accidents, incidents, or emergencies, including significant spillages. COSHH covers the management of carbon monoxide due to its toxicity.

DSEAR

The Dangerous Substances and Explosive Atmospheres Regulations (DSEAR) mandate the evaluation and management of the potential risk to personnel from fires or explosions caused by hazardous substances in the workplace. You are required to mitigate or minimise these risks to the extent that is feasibly possible. DSEAR covers the management of both LPGs and Methane as they can contribute to a highly flammable and explosive atmosphere.

What are the Hazards?

Carbon monoxide is the primary gas threat presented by boilers. According to the National Poisons Information Service, an average of 29 workplace-related cases of carbon monoxide poisoning are reported in the UK each year.

The results of carbon monoxide poisoning can be disastrous, and have been linked to an average of 60 deaths in England and Wales every year. While CO is perhaps one of the more well-known gas threats it isn't the only gas hazard posed by boiler rooms. Boiler rooms present a diverse set of gas threats; fortunately, IGD have spent more than a century developing pioneering technology to protect you against all of them.

Every boiler system presents a number of potential leak points, from bolt-threaded pipe fittings to gas boosters. To prevent the creation of a toxic or explosive atmosphere, targeted gas detection is a necessity.

Carbon Monoxide (CO)



- A by-product of incomplete combustion in boilers
- Colourless, odourless, toxic and flammable
- Even low-level exposure can pose serious health risks

STEL: 100ppm
 Short-Term Exposure Limit – 15 minutes

TWA: 20 ppm
 Time Weighted Average 8 – hours

Methane (CH₄)



- Methane is a hydrocarbon and the primary component of natural gas
- Can contribute to the creation of a flammable atmosphere
- A greenhouse gas and one of the main contributors to global warming



LPG (C₃H₈)



- Colourless and highly flammable
- Heavier than air
- A naturally occurring by-product of natural gas extraction



Closing the Gap Gas Detection from IGD

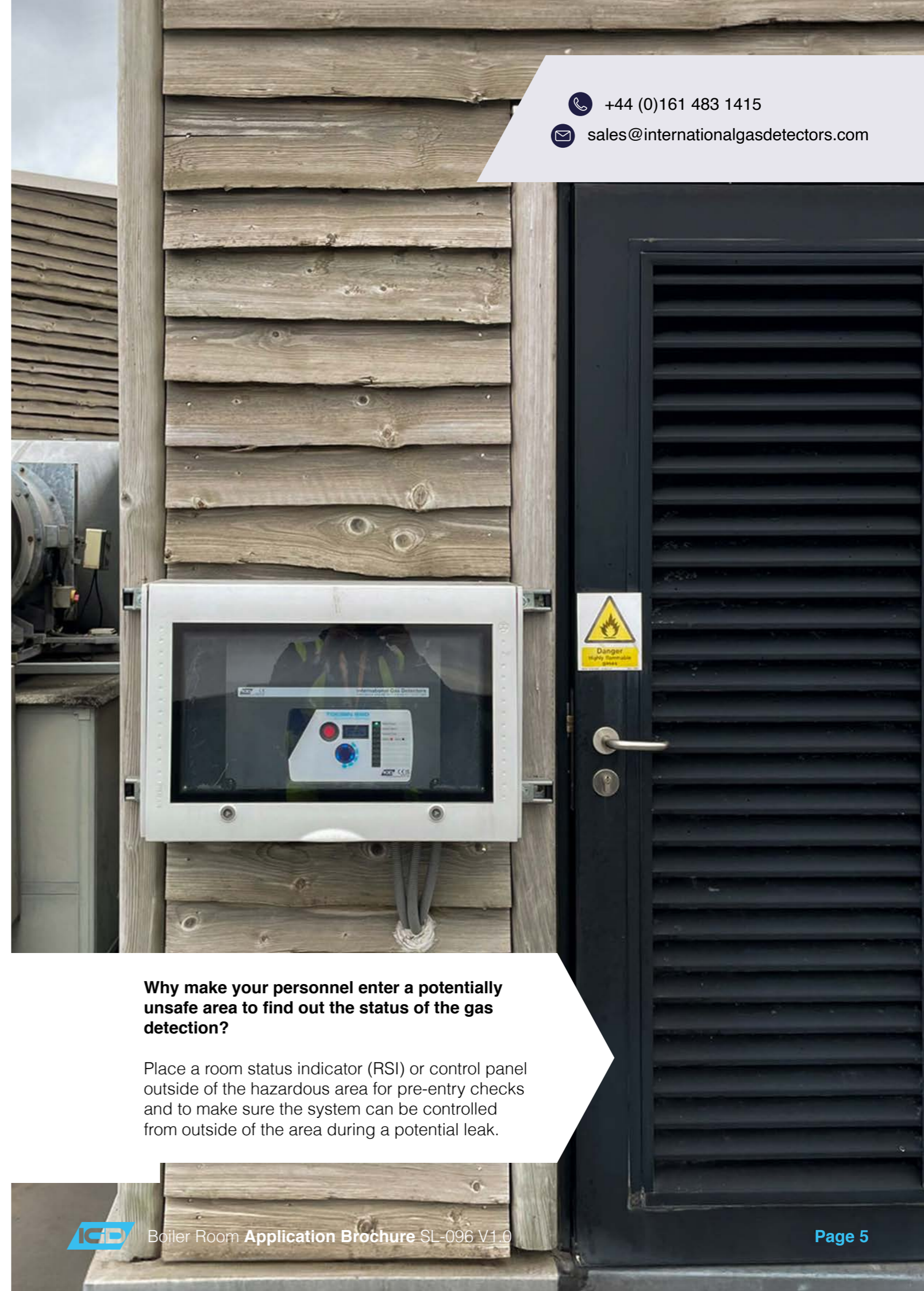
Most safety systems are reactive. They are designed to alert you to an issue that has already arisen, typically so that you can evacuate a premises or limit the amount of damage sustained.

A fire alarm system, for example, sits at the reactive end of the safety system spectrum, alerting you to the fact that a fire has already broken out. A gas detection system is a pre-emptive system, not a reactive one.

All of this happens in a matter of seconds
Once the gas has leaked an explosion could occur at any point



A gas detector detects a gas leak immediately, alerting you to the issue before there is a high enough gas concentration to present a toxic or flammable threat. The time between a gas leak and the creation of an explosive atmosphere can be a matter of seconds so you must have a safety system that allows you to take immediate action. Our gas detection systems bridge the safety gap by preventing the creation of an explosive atmosphere to protect you and your personnel before a threat arises.



Why make your personnel enter a potentially unsafe area to find out the status of the gas detection?

Place a room status indicator (RSI) or control panel outside of the hazardous area for pre-entry checks and to make sure the system can be controlled from outside of the area during a potential leak.

Boiler Room Gas Detection Gas Detector Placement

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Boiler rooms typically run on either Methane or LPG depending on the region. While this affects the placement of your detectors, for the most part, both boiler types require a similar gas detection setup.

Gas leaks in boiler rooms typically occur at:

- Bolted or threaded pipe fittings
- Flexible joints or pipe sections
- Valves
- Gas boosters and casings

Methane (CH₄)

If you're using a methane boiler, then it's best to place one of our collector cones ①, collector hoods ② and methane detectors directly above the potential leak point. Methane is lighter than air so the gas will rise into the collector, providing immediate, targeted detection.

LPG

If you're using an LPG boiler, then it's best to place one of our LPG detectors at ground level directly below the leak point ③. LPG is heavier than air and typically settle on the ground.

Carbon Monoxide (CO)

CO is a toxic gas, so detectors should be placed within the Life Safety Zone to provide personnel with accurate exposure monitoring ④. CO typically occurs due to incomplete combustion in the exhaust flue. If the exhaust flue goes through other rooms in the building, then those spaces will also require CO monitoring.



Controlling Your System

One of our TOC-635 Control Panels ⑤ should be placed just outside of, or at the entrance to, the application to provide personnel with gas readings before they enter the boiler room. As well as connecting beacon sounders ⑥ to detectors in the boiler room, you can provide an additional layer of safety by connecting one outside the application.

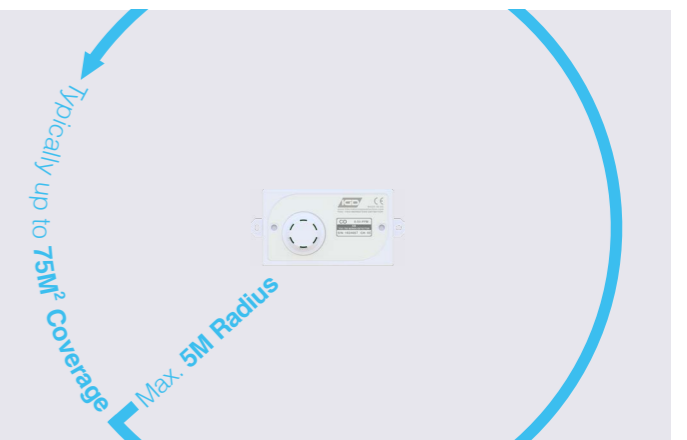


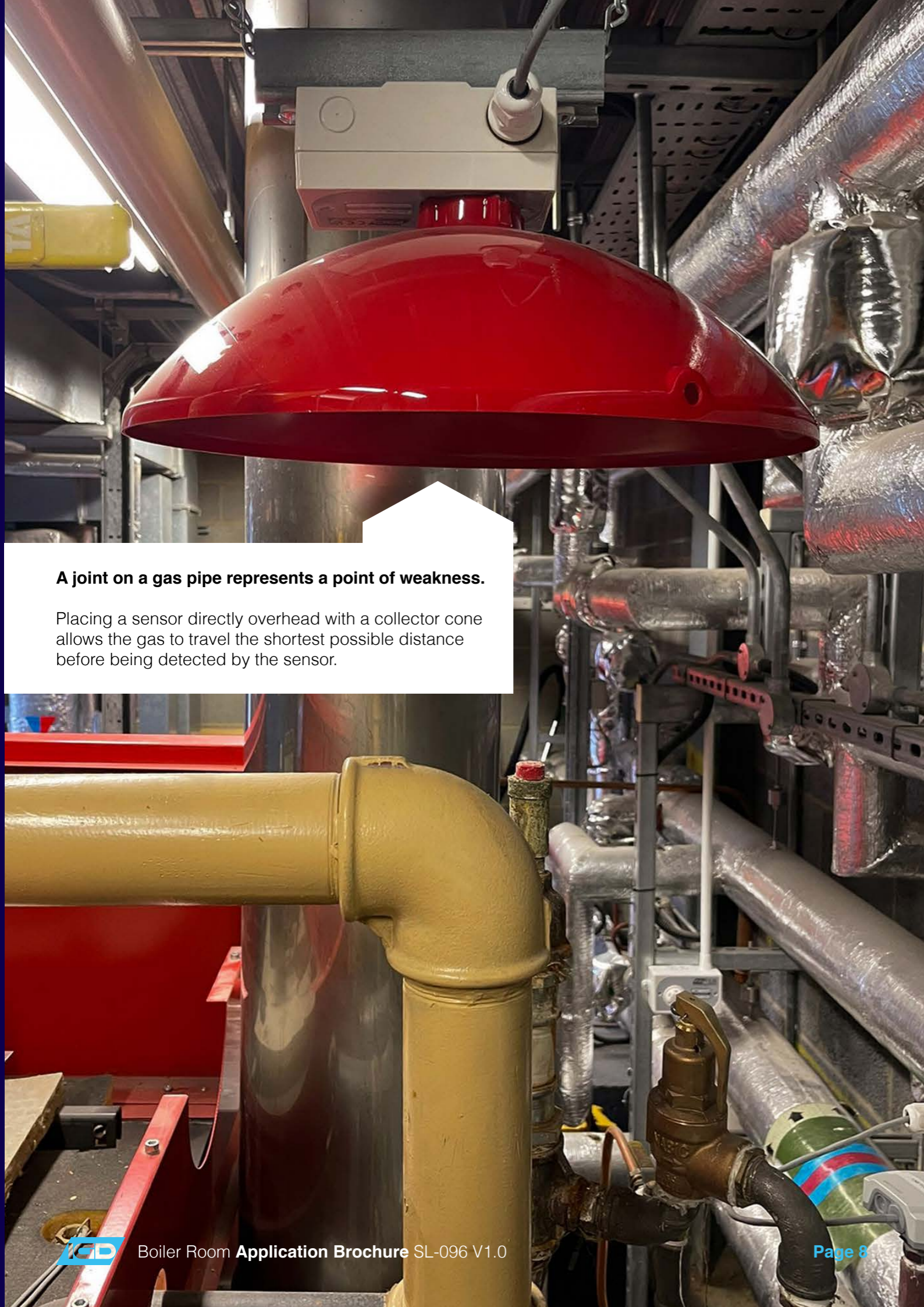
Portable Gas Detection

Boiler service engineers should be equipped with a portable multi-gas detector, like the SENKO MGT, to provide personal detection of flammable gases and CO. Boiler engineers might not know whether the gas detection system is functional, or if one has been installed at all making personal, portable gas detection a necessity ⑦.

Gas Detector Coverage

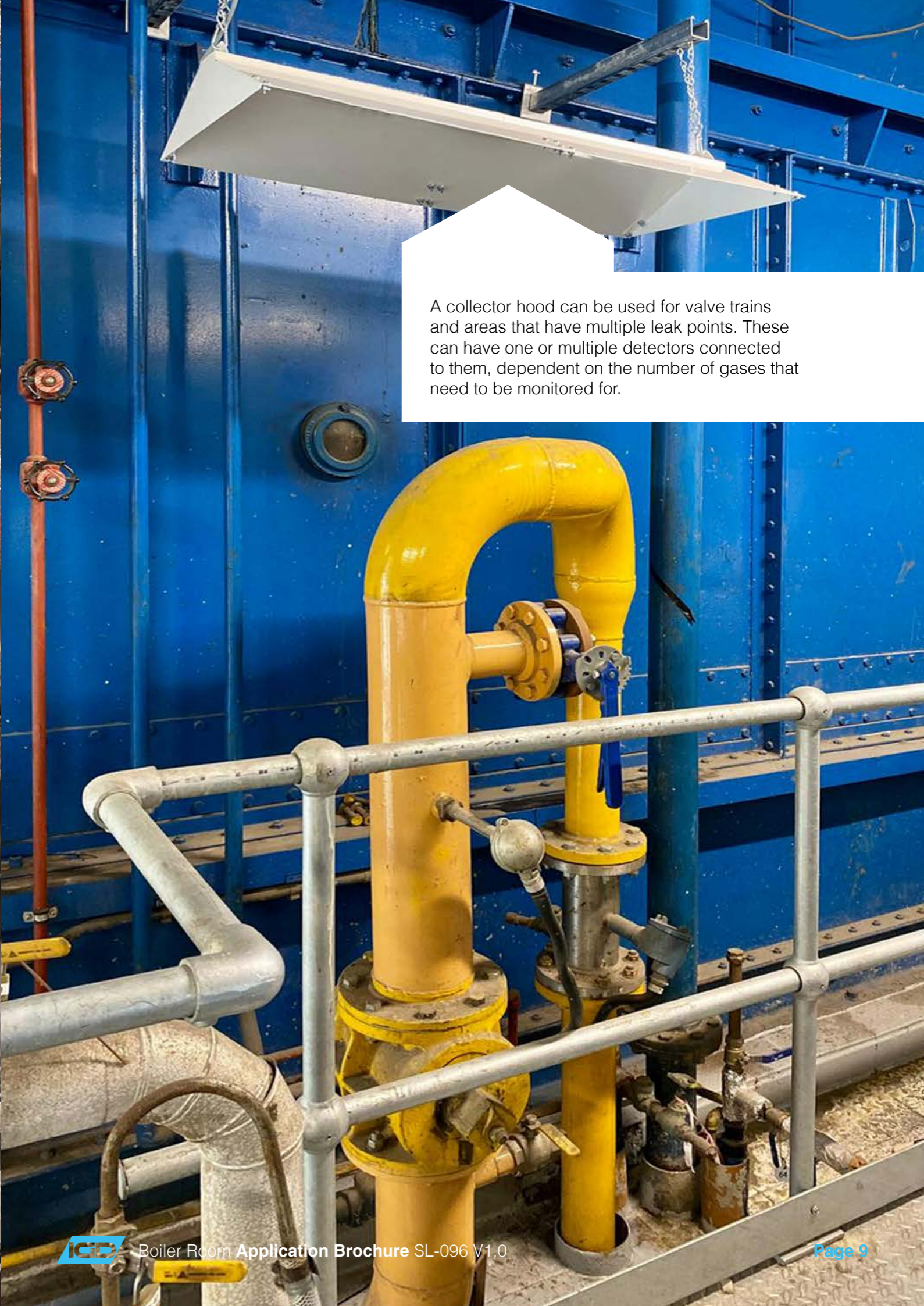
A gas detector can provide up to 75m² area coverage based on a 5m radius of operation. There are many factors affecting this, geometry of a room, equipment in the area, gas characteristics, ventilation, air flows, etc. IGD can support throughout the survey, design and installation process to ensure the best possible result on site.





A joint on a gas pipe represents a point of weakness.

Placing a sensor directly overhead with a collector cone allows the gas to travel the shortest possible distance before being detected by the sensor.



A collector hood can be used for valve trains and areas that have multiple leak points. These can have one or multiple detectors connected to them, dependent on the number of gases that need to be monitored for.

Boiler Room Gas Detection Fixed Gas Detection



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Our Fixed Gas Detection systems provide versatile 24/7 addressable protection from any boiler room gas threat. Simple, effective, comprehensive cover with bespoke solutions for any application and a variety of accessories. All our electronics are backed by a 10-year warranty, see terms and conditions.

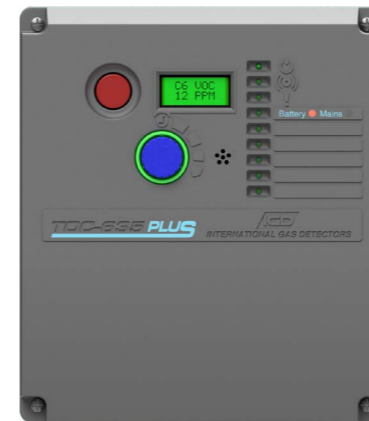
TOC-750 Safe Area



TOC-635 Control Panel



Additional Products



Key Features

- + Can monitor for up to 700 gases and vapours
- + Plug-and-Play sensors auto-change to monitor for different gases
- + Unique Labyrinth design protects sensors from damage
- + Sentinel+™ Addressable digital communication
- + Leading long-life sensor technology
- + Connect to additional detectors or other external devices, native or 3rd party
- + 4-20mA analogue inputs

Key Features

- + Cutting-edge 2-Wire Addressable Technology and Sentinel+™ digital communication software
- + Cloud-based data acquisitions via the onboard Wi-Fi pages (Plus)
- + SMS and email alerts.
- + Connect up to 8 (Micro) and 99 (Plus) devices.
- + Interconnect detectors in series and repurpose existing wiring to cut installation costs by up to 70%.
- + Live digital readings via the 2x8 display.
- + 1 Click-setup, assignable LED's and Jog-wheel interfacing.
- + Certified and performance tested to the internationally recognised 60079-29-1 standard
- + Integrate into an existing system via BACnet and Modbus.
- + Supports 3rd party external devices

Accessories

- Beacon Sounders provide loud audible and visual alerts when issues arise
- Collector Cones and Collector Hoods allow for the targeted monitoring of lighter-than-air gases like CH₄

Additional Products

Our TOC-750S Samplers are useful for areas where remote detection is required. They utilise our Piezo pump to provide targeted gas detection wherever it's needed.

Boiler Room Gas Detection Portable Gas Detection

All of our Portable Gas Detectors come with Online Training & Support

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Portable gas detectors are your first line of personal defence against gas hazards. Portable gas detectors allow for time-sensitive personal exposure monitoring and all products come bump-tested. IGD can provide both single and multi-gas portables from our two trusted partners.

mPower POLI Multi Gas



SENKO MGT Multi Gas



SENKO SGT-P Single Gas



Key Features

- Rating:** IP65, ATEX & Intrinsically Safe
- Battery:** Rechargeable, 16-hour lithium-ion
- Warranty:** 2-Year
- Alarm:** 95dB@30cm Audible, 360° light, vibration
- Datalog:** 6-Month
- Outer:** Durable double shot case
- Sensor:** Up to 5 gases on one detector
Sensors available for over 35 for gases and vapours
- Operation:** 2-Button
- Optional:** Pumped or diffusion

Key Features

- Rating:** IP66, ATEX/IECEX, Intrinsically Safe, CSA, UL & InMetro approved
- Battery:** Rechargeable, 2-month (infrared)
Rechargeable, 18 hours (pellistor)
- Warranty:** 2-Year
- Alarm:** 95dB@10cm Audible, 360° light
- Datalog:** 30 Most recent events
- Outer:** Rubberised PC case
- Sensors:** Carbon monoxide, flammable gases, hydrogen sulphide and oxygen depletion or enrichment
- Operation:** 1-Button

Key Features

- Rating:** IP66, ATEX/IECEX & Intrinsically Safe
- Battery:** Replaceable, 2-year
- Warranty:** 2-Year
- Alarm:** Audible, 360° light
- Datalog:** 30 Most recent events
- Outer:** Rubberised PC case
- Sensors:** Hydrogen sulphide, carbon monoxide, sulphur dioxide, hydrogen gas, oxygen, ammonia
- Operation:** 1-Button

Boiler Room Gas Detection Industry-Leading Technology

2-Wire Addressable

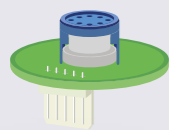
At IGD we are committed to constant improvement. We were the first gas detection company to offer addressable gas detection technology, and our unique 2-Wire Addressable systems are the culmination of over 100 years of innovation. Our systems harness our Sentinel+™ digital communication software to offer the most advanced gas detection on the market.

- + Immunity from EMC (Electromagnetic Compatibility)
- + Repurpose existing cabling and connect devices in series to cut installation costs by up to 70%
- + System Backup
- + Intuitive calibration, bump-testing and maintenance.
- + Internet of Things (IoT) capability with remote monitoring and cloud-based data acquisition via onboard Wi-Fi
- + Simple, fast installation
- + The fastest communication in the industry
- + Versatile and compatible with 3rd party systems
- + BACnet and Modbus outputs accommodate existing BMS and Fire systems.

Sensor Technology

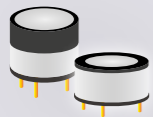
We've been developing gas detection sensor technology for over 100 years. Our in-house team of experts design and manufacture our products to provide you with the highest quality safety equipment and total peace of mind.

We've developed a huge range of sensor technologies to guarantee the perfect gas detection solution for any application. These are the sensors best suited to boiler room applications:



MK8 Pellistor

Our pellistor sensors monitor for flammable gases and offers ultimate protection from inhibiting materials, heat, and humidity. Unmatched poison resistance protects our sensors from toxic gases, providing a long operational life and minimal drift for continuous accuracy.



Electrochemical

Our electrochemical sensor provides parts per million (PPM) monitoring for CO. Electrochemical sensors detect gas leaks quickly and accurately, allowing for the precision management of your boiler room gas detection setup.

Boiler Room Gas Detection IGD Aftercare+ & Training



Why Choose IGD?

Our story begins in 1917 when Henry Ringrose founded the world's first gas detection company.

Over 100 years later our goal remains the same: to keep you safe by continuously improving our pioneering technology. From our first flammable gas detector to our groundbreaking 2-Wire Addressable gas detection technology, more than a century of innovation has positioned us as the Detectably Better choice for gas detection.

Today we manufacture detectors for over 700 gases and vapours at our purpose-built facility in Stockport. Total control of the manufacturing process means total control of the delivered product, so you can relax in the knowledge that we have you covered. From our control panels to our detectors to our PCB components, everything is manufactured in-house so that we can guarantee you the level of quality that our customers have come to expect of us.


IGD Aftercare+ & Training

At IGD our work doesn't end with the installation of your system. We provide support to our clients through versatile training packages because we believe the best way to limit the threat of gas hazards is through education. That's why our team provide training, not only on the installation and maintenance of your system, but also on the fundamentals of gas safety. The IGD Online Training Academy is completely free and externally approved by the training body CPD UK, and our Aftercare+ Team will always be on hand if you need further support.





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