sensitron

A Halma company

products

CATALOG

Gas detection systems

sensitron

A Halma company

“Sensitron is dedicated to developing cutting-edge solutions that not only enhance safety but also embrace the challenges posed by new and emerging technologies”

FOR THE SAFETY OF PEOPLE
AND ENVIRONMENTS
WE DON’T COMPROMISE

INDEX

sensitron

Sensitron is a global gas detection company.

The product range consists of gas detection systems, detectors and control panels, for all applications.

Founded in 1988 in Milan area, Sensitron became part of the Halma plc group in 2021.

Always focused on innovation and technology, Sensitron continues its innovative spirit also in communication.

NEWS

ACCURACY WITHOUT COMPROMISE: **THE GAS DETECTOR WITH WIRELESS INTERFACE** TOWARDS THE FUTURE.

+ **SMART 3 Blizzard: the refrigerant gas detector with infrared sensor and management via the advanced SENSE interface. Accuracy, customizable alarms, and wireless maintenance combine to ensure safety and usability at the highest level.**

+ **SENSE is available in 6 different languages, you can view and download two different types of reports and the test certificate, do firmware updates and remotely set various detector functions.**

MANAGE
SMART 3 BLIZZARD
WITH SENSE

scan QR code | WiFi connect | enter LOGIN | LED feedback | manage PARAMETERS

HOW TO CHOOSE **A GAS DETECTOR**

Identification of the gas to be detected

- FLAMMABLE
- TOXIC
- OXYGEN/INERT GASES
- REFRIGERANT

Sensors

Identification of the detection technology to be used

- INFRARED

- CATALYTIC SENSOR

- PID SENSOR

- ELECTROCHEMICAL CELL

FLAMMABLE
Risk of fire and/or explosion

The thermal reaction occurs in the presence, in the right proportion and simultaneously, of:

- **Ignition energy**
  Ignition source
- **Fuel**
  gas or dust
- **Comburant**
  oxygen

TOXIC
Risk of poisoning

Toxic gases can have very dangerous physiological effects on humans.

It is the employer's responsibility to ensure that employees are not exposed to such levels of toxicity.

- **TVL**
  Limit value of concentrations of toxic gases in the workplace to which workers can be exposed over time without suffering harmful effects.
- **TLV-TWA**
  Time averaged concentration, 8 hours or 48 hours, to which workers can be repeatedly exposed over time, without suffering harmful effects.
- **TLV-STEL**
  Maximum concentration to which workers may be exposed for a maximum period of 15 minutes without being affected.

OXYGEN/INERT GASES
Risk of choking Lack of oxygen

Inert gases can reduce the concentration of oxygen in the environment causing asphyxiation.

- **Inert gases**
  Some examples:
  Cryopreservation of biological samples in liquid nitrogen
  Use of helium, argon, nitrogen, etc. in laboratories
  MRI rooms in which helium leaks may occur
  Use of inert gases for extinguishing fires (EDC)
- **Oxygen**
  Enrichment or decrease
  The human organism does not encounter difficulty breathing up to a minimum oxygen level of 19,5 %. For this reason, the concentration level must be monitored so that it never falls below 18 19 %. This condition is referred to as oxygen deficiency.
  Oxygen enrichment increases flammability in the atmosphere and toxicity to humans when it exceeds 24% concentration.

REFRIGERANT
Risk of fire, poisoning, lack of oxygen or environmental damage

Refrigerants are particular substances that, subjected to certain pressures, have the ability to absorb significant amounts of heat, passing from the liquid to the gaseous state and reaching remarkably low temperatures.

Given the restrictions dictated by the new protocols, the market has begun to move along two different paths: the research for a refrigerant with the lowest possible environmental impact and the "rediscovery" of natural refrigerants, in particular with the release of the new F gas regulatio.

- **Toxicity of refrigerant gases**
  Group A: all refrigerants that are not toxic for concentrations of 400 ppm or less.
  Group B: this group includes all refrigerants that are toxic for concentrations below 400 ppm.
- **Flammability of refrigerant gases**
  Class 1: non flammable refrigerants
  Class 2: moderately flammable refrigerants
  Class 3: highly flammable refrigerants
  A2L mildly flammable refrigerants

INFRARED
Infrared optical principle

- **Optical sensors detect the difference in attenuation, at a specific wavelength, between a reference signal and the signal produced by the passage of light through the substance to be detected.**
- **Life expectancy over 5 years, selective detection, insensitive to poisoning substances.**

CATALYTIC SENSOR
Chemical principle

- **The operating principle is based on the oxidation of flammable gas on the surface of an electrically heated catalytic element.**

  It is sensitive to certain poisoning substances or inhibitors.

  Relative response: the output variation for the same %LFL concentration of different gases is called relative sensitivity.
- **Average life of 4 5 years, linear and suitable for detecting a wide range of flammable gases. It is sensitive to certain poisoning substances and inhibitors.**

PID SENSOR
Photoionization principle

- **A sensor with a photo ionisation detector, inside there is an ionisation chamber containing an ultraviolet light source which, when gases or VOCs enter, ionises the molecules, producing electrons and positive ions.**

  They detect a wide range of VOCs, including benzene, toluene, ethanol, formaldehyde.

  Unsuitable for detecting inorganic gases , e.g. oxygen, hydrogen or carbon dioxide.
- **Photo ionisation sensor, detects low concentrations and technology enables the detection of volatile organic compounds (VOCs). Requires annual lamp replacement.**

EC SENSOR
Electrochemical cell

- **toxic gas and oxygen detection, with high resolution and response accuracy.**

  Detection range from a few ppm to Vol (e g Oxygen).

  Inert gases (e g Argon, Helium, Nitrogen...) are detected due to lack of oxygen.
- **Electrochemical cell sensor, has a detection range from ppm to %VOL.**

  High response accuracy.

  Operation is affected by low temperatures and humidity.

DETECTORS + CONTROL PANELS

The Marine Equipment Directive (MED, Directive 2014/90/EU) ensures that safety requirements are applied and implemented in a harmonised manner throughout the European Union. Thanks to the China Classification Society (CCS), we guarantee the same level of safety also in the Chinese markets.

The objectives of the directive are:
- Improve safety at sea
- Prevent marine pollution

SIL

Safety Integrity Level (SIL) is the ability to reduce evaluated risk while ensuring the reliability of safety systems. There are 4 levels of SIL: SIL1, SIL2, SIL3, SIL4. Higher values of SIL correspond to a lower probability that the safety system will fail when called upon to operate.

29-1
IEC60079-29-1

EN 60079-29-1 describes the construction and test methods for verifying the performance of flammable gas detectors. The test sequence ensures the accuracy of the gas reading, its stability and response time.

HART

HART (Highway Addressable Remote Transducer) is the global standard for sending and receiving digital information through the 4-20 mA analog current loops that connect most field instruments to distributed control systems.

CERTIFICATIONS

2014/34/UE

Directive 2014/34/EU establishes the requirements and assessment of equipment intended for use in potentially explosive atmospheres. In fact, it defines health and safety requirements for the design, manufacture and commercialization of such equipment to ensure the safety of operators.

EN 50545-1 is dedicated to systems that enable the detection of toxic and combustible gases in garages. It describes the requirements for gas detectors and control units, the performance they must guarantee, and how to perform tests for evaluation.

The IECEx system is an international certification system. It was developed by the International Electrotechnical Commission to simplify global trade in equipment used in explosive atmospheres.

DETECTORS

SMART **3G D2**

SMART **3G Gr.1**

SMART **S SS**

SMART **S MS**

		Analogue output	Digital output		Relay output	GAS				
		Standard	Standard	Optional		Flammable	Toxic	CO2	VOC	Refrigerant
SMART 3G	**C2**	4-20mA		RS485 output	1 or 3	x	x	x	x	x
SMART 3G	**C2-LD**	4-20mA		RS485 output	3	x	x	x	x	x
SMART 3G	**D3**	4-20mA		RS485 output	3	x	x	x	x	x
SMART 3G	**C3**	4-20mA		RS485 output	1 or 3	x	x	x	x	x
SMART 3G	**D2**	4-20mA		RS485 output	3	x	x	x	x	x
SMART 3G	**Gr.1**	4-20mA			3	x	x			
SMART S	**SS**	4-20mA	RS485 output	modem HART	3	x	x	x	x	x
SMART S	**MS**	4-20mA	RS485 output	modem HART	3	x	x	x	x	x
SMART S	**MS MED**	4-20mA	RS485 output		3	x				x
SMART 3	**NC**	4-20mA		RS485 output	1 or 3	x	x	x		
SMART 3	**R**	4-20mA	RS485 output		3	x	x	x		x
SMART 3	**BLZRD**	4-20mA			2					x
SMART 3H	**LITE**		RS485 output		2			x		x
SMART 3H	**FM-LITE**		RS485 output		2			x		x
SMART P			RS485 output			x	x			

SMART **3G C2**

SMART **3G C2 LD**

SMART **3G D3**

SMART **3G C3**

SMART **3 BLIZZARD**

SMART **3 NC**

SMART **3 R**

SMART **3H LITE**

SMART **3H FM-LITE**

SMART **P**

CERTIFICATIONS

SIL		ATEX					Marine	IECEx		EN50545-1
2	3	Zone 1 explosion-proof	Zone 1 explosion-proof Performance	Group 1	Zone 1: IS	Zone 2: Increased safety		Zone 1 explosion-proof	Zone 1: IS	
Hw	Sw	x	x		x			x	x	
Hw	Sw	x	x		x			x	x	
Hw	Sw					x				
Hw	Sw					x				
Hw	Sw	x	x		x			x	x	
Hw	Sw	x		x				x		
Hw	Sw	x	x		x			x	x	
Hw	Sw	x	x					x		
Hw	Sw	x	x				x			
x										
										x

CONTROL

PL4+

PL4+D

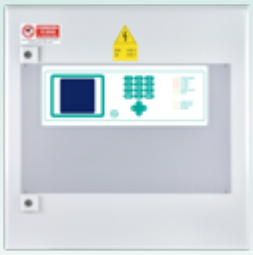
	Max. inputs	Max. inputs = Onboard + modules		Max outputs	Max outpus = Onboard + modules	
		Onboard 4-20mA analogue	Max. inputs via modules, expansions and/or RS485		Onboard Relay	Max outputs via modules with Open Collector and/or relay
PL4+	8	4	4	21	5	16
PL4+D	12	4	8	21	5	16
MULTISCAN 8+	16	8	8	38	6	32
MULTISCAN 8+16	24	8	16	54	6	48
MULTISCAN ++ S1	40	8	32	72	8	64
MULTISCAN ++ S1	72	8	64	136	8	128
MULTISCAN ++ S1	136	8	128	264	8	256
MULTISCAN ++ S1	264	8	256	520	8	512
MULTISCAN++ S2	40	8	32	72	8	64
MULTISCAN++ S2	72	8	64	136	8	128
MULTISCAN++ S2	136	8	128	264	8	256
MULTISCAN++ S2	264	8	256	520	8	512
MULTISCAN++PK-8D	12	4	8	21	5	16
MULTISCAN++PK	40	8	32	72	8	64
MULTISCAN++PK	72	8	64	136	8	128
MULTISCAN++PK	136	8	128	264	8	256
MULTISCAN++PK	264	8	256	520	8	512
MULTISCAN++MED	72	8	64	136	8	128

PANELS

MULTISCAN **++S**

MULTISCAN **8+**

MULTISCAN **++PK**



MULTISCAN **++MED**

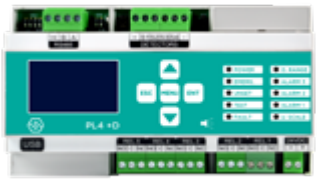
CERTIFICATIONS						Supervision interface	
SIL			ATEX Performance	Marine	EN50545-1	Default remote control	Rack
1	2	3					
			x			NO	
x			x			USB-B	
x			x			RS232 o USB-B	
x			x			RS232 o USB-B	
x			x			RS232	19” 6U HE
x			x			RS232	19” 6U HE
x			x			RS232	19” 6U HE
x			x			RS232	19” 6U HE
	x		x			RS232	19” 6U HE
	x		x			RS232	19” 6U HE
	x		x			RS232	19” 6U HE
	x		x			RS232	19” 6U HE
					x	USB-B	19” 6U HE
					x	RS232	19” 6U HE
					x	RS232	19” 6U HE
					x	RS232	19” 6U HE
					x	RS232	19” 6U HE
	x		x	x		RS232	

CONTROL PANELS

The control panels are designed to work in small and large systems, in all application spectrums, classified and non classified areas.

PL4+

Max input: 8
Max output: 21
Certifications: Atex,
Performance EN 60079-29-1



PL4+D

Max input: 12
Max output: 21
Certifications: Atex,
Performance EN 60079-29-1, SIL1

MULTISCAN **8+**

Max input: 24
Max output: 54
Certifications: Atex,
Performance EN 60079-29-1, SIL1

MULTISCAN**++S1**

Max input: 264
Max output: 520
Certifications: Atex,
Performance EN 60079-29-1, SIL1

MULTISCAN**++S2**

Max input: 264
Max output: 520
Certifications: Atex,
Performance EN 60079-29-1, SIL2

MULTISCAN**++PK**

Max input: 264
Max output: 520
Certifications: EN50545-1

MULTISCAN**++MED**

Max input: 72
Max output: 136
Certifications: ATEX,
Performance EN 60079-29-1, SIL2,
MED

SMART 3G

SMART 3G gas detectors are designed for all applications.

SMART **3G D2**

SMART **3G C2**

SMART **3G C3**

SMART **3G C2 LD**

SMART **3G D3**

Gas detected: flammable, toxic, CO2, VOC and refrigerant

Sensors: catalytic, infrared, electrochemical cell and PID

Outputs: analogue 4-20mA, RS485, relay

Certifications: hardware SIL2 and software SIL3, ATEX, IECEx

SMART **3G Gr.1**

SMART 3G-Gr.1 gas detectors are designed for use in mines, tunnels or areas classified Group 1.

Gas detected: flammable and toxic

Sensors: catalytic, infrared, electrochemical cell

Outputs: analogue 4-20mA, RS485, relay

Certifications: Hardware SIL2 and software SIL3, ATEX Group 1

Also available with display

PHARMACEUTIC

DEPENDING ON THE TYPE OF GAS, THIS COULD BE A SOLUTION:

MULTISCAN++S1

SMART 3G D3

SMART 3G C2-LD

Gas detection in the pharmaceutical industry is crucial in all processes: in laboratories, in production and in chemical processing to storage of materials and products.

Most detected gas:
OXYGEN (O2), AMMONIA (NH3), LPG, HYDROGEN (H2), METHANE (CH4), ACETONE (C3H6O), ETHYL ACETATE (C4H8O2), HEXANE (C6H14), STYRENE (C8H8), PENTANE (C5H12), PROPANE (C3H8), BUTANE (C4H10), TOLUENE (C6H5CH3)

WASTEWATER AND

DEPENDING ON THE TYPE OF GAS, THIS COULD BE A SOLUTION:

PL4+

SMART 3G C2

In wastewater plants, the most common hazards come from sources such as sewers, aeration tanks, sludge digestion tanks and deodorization plants.

Most detected gas:
METHANE (CH4) HYDROGEN (H2) CHLORINE (CL2) SULPHUR DIOXIDE (SO2) AMMONIA (NH3) CARBON DIOXIDE (CO2) ETHYLENE OXIDE (ETO) OZONE (O3)

ENERGY STORAGE

DEPENDING ON THE TYPE OF GAS, THIS COULD BE A SOLUTION:

MULTISCAN++S1

SMART 3G C2

Inside a Battery Energy Storage System (BESS) is essential to detect the presence of hydrogen, a highly flammable gas that can accumulate in battery charging and storage areas.

Detected gas:
HYDROGEN (H2)

PAPER INDUSTRY

DEPENDING ON THE TYPE OF GAS, THIS COULD BE A SOLUTION:

MULTISCAN++S2

SMART 3G D2

In paper industry, gas detection is crucial during printing processes, coating and during paper bleaching or ink use.

Most detected gas:
METHANE (CH4), HYDROGEN (H2) SULPHUR DIOXIDE (SO2) CHLORINE (CL2) AMMONIA (NH3) ETHYLENE OXIDE (ETO)

SMART S

Due to their high customization, SMART-S gas detectors are designed for harsher and more aggressive environments.

Depending on the application, the detector can be customized by choosing sensor head, base board and enclosure.

SMART **S-SS**

Gas detected: flammable, toxic, CO2, VOC and refrigerant

Sensors: catalytic, infrared, electrochemical cell and PID

Outputs: analogue 4-20mA, RS485, relay, HART modem

Certifications: hardware SIL 2 and Software SIL3, ATEX cat. 2 explosion-proof and IS, IECEx

Available with LED display

SMART **S-MS** SMART **S-MS MED**

SMART S MS gas detectors are designed to withstand the harshest application conditions.

Gas detected: Flammable, toxic, CO2, VOC and refrigerant

Sensors: Catalytic, infrared, electrochemical cell and PID

Outputs: analogue 4-20mA, RS485, relay, HART modem

Certifications: SIL, ATEX zone 1 cat. 2, IECEx

SMART S-MS MED gas detectors are MED and CCS certified to withstand even marine applications.

Gas detected: flammable and refrigerant

Sensors: catalytic, infrared

Outputs: analogue 4-20mA, RS485, relay

Certifications: SIL, ATEX zone 1 cat. 2, MED, CCS

OIL & GAS

DEPENDING ON THE TYPE OF GAS, THIS COULD BE A SOLUTION:

MULTISCAN++S2

SMART S SS

Gas detection is crucial during extraction, processing, and refining processes in the petrochemical industry.

Most detected gas:
METHANE (CH4), ETHANE (C2H6), PROPANE (C3H8), HYDROGEN (H2), HYDROGEN SULPHIDE (H2S), SULPHUR DIOXIDE (SO2), CARBON MONOXIDE (CO), CARBON DIOXIDE (CO2), HYDROCHLORIC ACID (HCL), NITROGEN, VOLATILE ORGANIC COMPOUNDS (VOC)

MARINE

DEPENDING ON THE TYPE OF GAS, THIS COULD BE A SOLUTION:

MULTISCAN++MED

SMART S MS MED

In the marine industry, gas detection is critical to prevent hazards from ship exhaust, in addition the transportation of dangerous goods by sea may require monitoring for toxic and/or polluting gases.

Most detected gas:
METHANE (CH4), PROPANE (C3H8), HYDROGEN (H2), SULPHUR DIOXIDE (SO2), AMMONIA (NH3), CARBON MONOXIDE (CO), CHLORINE (CL2), SULFURIC ACID (H2SO4), CARBON DIOXIDE (CO2), VOLATILE ORGANIC COMPOUNDS (VOC), METHANOL (CH3OH)

SMART 3

SMART 3 gas detectors are designed for use in non classified areas.

SMART **3H LITE**

Gas detected:
CO2 and refrigerant
Sensor: infrared
Output: RS485, relay

SMART **3H FM-LITE**

Gas detected: CO2 and refrigerant
Sensor: infrared
Output: RS485, relay
Non-intrusive calibration via magnet
12-24 Vcc or 90-240 Vca power supply

SMART **3 NC**

Gas detected: flammable, toxic, CO2
Sensors: infrared, catalytic, electrochemical cell
Output: analogue 4-20mA, RS485, relay
Needs a control panel

SMART **3 R**

Gas detected: flammable, toxic, CO2 and refrigerant
Sensors: infrared, catalytic, electrochemical cell
Output: analogue 4-20mA, RS485, relay
12-24 Vcc power supply. On request 90-240 Vac but without 4-20mA output

SMART **3 BLIZZARD**

Gas detected: refrigerant

Sensors: infrared

Output: analogue 4-20mA, relay

Certification: SIL2

SMART 3 Blizzard is managed via SENSE interface

MACHINERY ROOM

DEPENDING ON THE TYPE OF GAS, THIS COULD BE A SOLUTION:

SMART 3 R

SMART 3 BLIZZARD

Engine rooms are confined spaces that often house complex engines and machinery that may run on diesel, gas or electric power.

Most detected gas:
METHANE (CH4), PROPANE (C3H8), HYDROGEN (H2), SULPHUR DIOXIDE (SO2), AMMONIA (NH3), CARBON MONOXIDE (CO), CHLORINE (CL2), CARBON DIOXIDE (CO2), VOLATILE ORGANIC COMPOUNDS (VOC)

OXYGEN DETECTION IN MR

DEPENDING ON THE TYPE OF GAS, THIS COULD BE A SOLUTION:

PL4+

SMART 3 R

A Magnetic Resonance Imaging machine requires the use of refrigerant gases that make it necessary to carefully detect the oxygen level.

Gas detected:
OXYGEN

HOSPITAL

DEPENDING ON THE TYPE OF GAS, THIS COULD BE A SOLUTION:

PL4+

SMART 3 NC

In the hospital sector, particularly within critical areas such as operating rooms or intensive therapy units, gas detectors are used to ensure the safety of environments.

Most detected gas:
OXYGEN (O2), CARBON DIOXIDE (CO2), METHANE (CH4)

BUILDING AND HOTEL

DEPENDING ON THE TYPE OF GAS, THIS COULD BE A SOLUTION:

SMART 3H-LITE

SMART 3H FM-LITE

Inside of buildings such as hospitals and hotels, it is necessary to detect possible leaks in air conditioning and refrigeration systems, as well as monitor environments such as kitchens, canteens, or laundries.

Most detected gas:
REFRIGERANT GAS A1 AND A2L, CO2

PK SYSTEM

The PK gas detection systems is designed to meet European standard EN 50545-1.

To operate, SMART P gas detectors need to be connected to MULTISCAN++PK

Gas detected:
flammable and toxic

Sensors:
catalytic, electrochemical cell

Output: RS485

Compliance: EN 50545-1:2011+A1:2016

Available in P-2 version to simultaneously detect CO and NO2 gases or CO and petrol vapours..

SMART **P**

MULTISCAN **++PK**

Max input: 264

Max output: 520

Rack: 19”6U HE

Compliance: EN 50545-1:2011+A1:2016

PARK

DEPENDING ON THE TYPE OF GAS, THIS COULD BE A SOLUTION:

MULTISCAN++PK

SMART P

Inside underground garages, air circulation can be complex and dangerous gas concentrations could increase the risk of explosion and poisoning.

Most detected gas:
LPG, CARBON MONOXIDE (CO), PETROL VAPOURS

MAINTENANCE

WHAT ARE THE BENEFITS OF PERFORMING PERIODIC MAINTENANCE?

Reduce running costs

Reduce environmental impact

Ensure safety standards

Extend the life of instruments

Prevent downtime

Ensure system efficiency

ENTRUSTING PERIODIC MAINTENANCE TO SENSITRON MEAN:

Start-up and testing of our products

We also perform tests on systems that are already started and installed

We ensure the highest security standards

We configure the system to ensure the best performance

BIM + AR/VR

BIM (Building Information Modeling) is a digital approach to project delivery that allows the use of 3-D models instead of design drawings, fostering collaboration and ensuring access to up-to-date information while reducing error rates. This technology enables the creation of an information model containing useful information at every stage of design. All BIM files of our products are available on our website.

Benefits of using BIM files:
Digitization of processes, shared work environment, better management of work, implementation of new technologies such as AR and VR, reduction in errors, timeframes and management costs, sustainable policies.

BIM

VR

AR

The use of Augmented Reality and the metaverse allows us to offer an immersive and interactive experience, enhancing engagement.

Augmented Reality aims to offer a three-dimensional view of our products, allowing everyone to explore them in detail from every angle. Within it, it is also possible to find information and technical data about the product itself.

With virtual reality, the intent is to immerse oneself in a digital future through the exploration of virtual spaces. In the "Sensitron HUB" space, it is possible to discover information regarding who Sensitron is and what it does, see our products in 3D, and learn more about the world of gas detection. Through the metaverse, real-world contexts have also been recreated, including a parking lot and a pharmaceutical chemical environment, to provide as much information as possible about how our products are useful.

AR / VR
DIGITAL EXPERIENCE

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For the safety of people and environments we don't compromise.

For more information
visit our website.

www.sensitron.it

sensitron

A Halma company

Italian company
a world leader
in gas detection,
for all applications.

SENSITRON s.r.l.
Viale della Repubblica, 48
20007 - Cornaredo (MI) Italy

TEL +39 0293548155
FAX +39 0293548089

contact@web.sensitron.it

www.sensitron.it

Halma