



Comfort and Safety

Our most basic, fundamental human need is the need for comfort, as the state of satisfaction in terms of physical and mental needs and absence of worries. As humans, we constantly seek to increase it.

However, as it turns out, the essence of the human nature is not so much ensuring comfort, but unceasingly striving to increase it. It is also unrelenting curiosity of the world, discovering and exploring it. By giving in to this temptation, as humans, we have created civilisation – science, industry, technology, culture...

Today, we live and work in the industrialised, intensively changing world. In the world, the development of which most often means construction of increasingly complex and sophisticated systems and technological installations, frequently the ones that process high amounts of energy, as well as dangerous, flammable or toxic substances.

As a result of various causes, for example failure of technological installations, someone's deliberate decision, unaware action, or just ignorance, those substances may be released to the environment, thus creating a hazard to people, property, or natural environment.

Aiming to ensure the sense of safety, apart from preventive measures, it is necessary to take actions that eliminate the threat immediately after it occurs.

Therefore, it is necessary to monitor the presence of dangerous gas substances in the environment, and in case of their detection – taking appropriate actions in order to prevent losses or stop their increase.

Who we are?

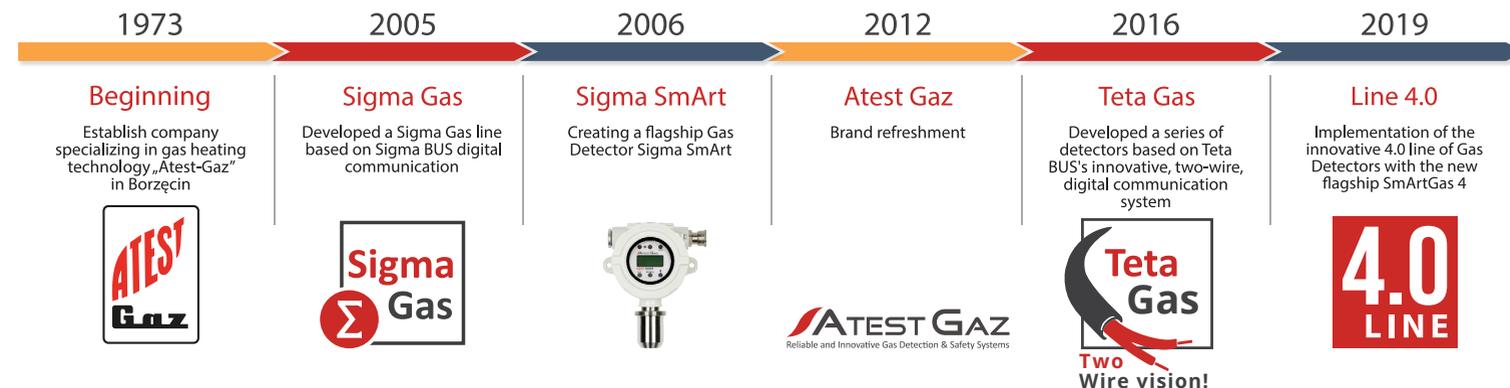
Atest Gaz is the leading Polish producer of innovative and reliable gas detection and safety systems and a renowned reference centre in the aforementioned scope, which, through provided services, wide knowledge, long-term experience, and advanced technology, works to ensure full safety for people, property, and environment.

In our daily activity we concentrate on measuring the composition of gases, monitoring and detection of hazardous concentrations.

Our specialty are innovative Gas Detection & Safety Systems providing reliable information on gas hazards or their absence. In other words, systems which ensure the sense of safety when everything is ok and effectively warn in case of hazard.

The mission of Atest Gaz is to ensure our Customers and Users all the comfort resulting from the sense of human life and health safety as well as protection of property and environment from hazards associated with dangerous gases.

The strength of our brand results from everyday work of a qualified and experienced team of specialists – enthusiasts, but also from a multidirectional experience, an access to international know-how and perfectly developed research and design facilities. As a result, Atest Gaz may offer unique, technologically advanced, innovative, and reliable products, solutions and systems that comprehensively and completely satisfy the individual needs of Clients of both the industrial and civil engineering sector (HVAC).



1.0 | Gas detection in the industry

Atest-Gaz has been consistently applying high-quality uncompromising solutions in industrial gas safety. Strict requirements imposed on our products result from a high degree of complexity of process installations as well as from a large number and diversity of possible hazards caused by combustible as toxic gases.

We have been closely cooperating with representatives of the Polish industry and international experts, therefore we are well aware of the requirements placed on the devices which we produce.

Our main focus is on solving problems faced by the users of industrial facilities and on delivering the solutions that respond to such problems. This model of cooperation provides us with experience, knowledge and additional opportunities for our products development. This is why our solutions are so innovative and have

additional features, unseen in the products of our competitors.

The products of Atest Gaz have received favourable opinions from the largest industrial plants in Poland. Our products are used in food processing, chemical, power, gas, petrochemical and many other industries. We watch over the safety of people working in the manufacture of paints, varnishes, fuels, cars, chemicals, steel structures and even LCD monitors.

While continuing cooperation with the industry, we look forward to continuous development of Polish products and know-how.

1.2 | Gas detection in the industry Detected gases

Thanks through to the technology and experience gained, and thanks to the wide configuration possibilities, Sigma Gas Systemit has the possibility of detecting many gases - Below are exemplary gases listed:

Methane	CH₄	Phosgene	COCl₂	Butyl acetate	C₆H₁₂O₂
Propane	C₃H₈	Oxygen	O₂	Pentane	C₅H₁₂
Ammonia	NH₃	Ethylene oxide	C₂H₄O	Hexane	C₆H₁₄
Hydrogen	H₂	Propylene oxide	C₃H₆O	Heptane	C₇H₁₆
Acetylene	C₂H₂	Nitric oxide	NO	Methanol	CH₃OH
Carbon monoxide	CO	Nitrogen dioxide	NO₂	Isopropanol	C₃H₈O
Carbon dioxide	CO₂	Benzene	C₆H₆	Ethanol	C₂H₅OH
Hydrogen sulfide	H₂S	Toluene	C₇H₈	Acetone	C₃H₆O
Hydrogen cyanide	HCN	Xylene	C₈H₁₀	Methyl ethyl ketone (MEK)	C₃H₈O
Hydrogen chloride	HCl	Styrene	C₈H₈	Epichlorohydrin	C₃H₅ClO
Sulfur hexafluoride	SF₆	Ethyl acetate	C₄H₈O₂	Carbon disulfide	CS₂
		Propyl acetate	C₅H₁₀O₂		

3.0 | Devices



Gas Detectors - Ex

SmArtGas 4 and ReAct 4 Gas Detectors are designed to measure dangerous levels of gases in potentially explosive atmospheres, where flammable gases, vapors and dusts may occur. These detectors can be made in several options e.g. without display, with LCD or FLED display.

Gas Detectors



ProGas 4 is designed to measure dangerous levels of gases in no explosive atmospheres but in industrial facilities. These detectors can be made in several options e.g. without display, with LCD or FLED display. Sigma ProGas is available in variants for SF6 detection and cooling gases - f-gases / Rx.



Signalling devices

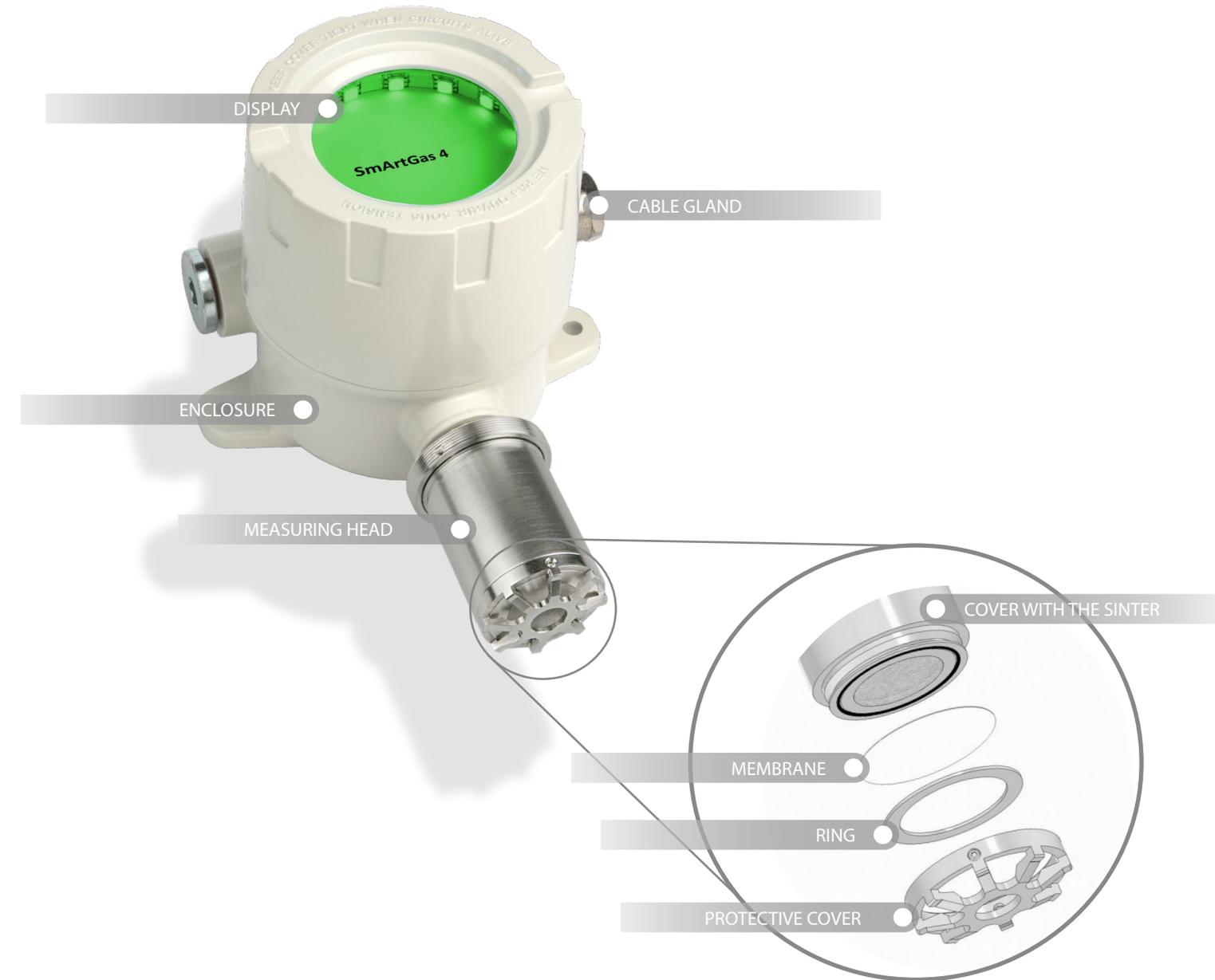
The Sigma System guarantees reliable dissemination of clear and transparency messages about gas hazards owing to self-developed and unique warning and alarm devices of LTT, HTT or SOLED3 types. These warning devices are seamlessly integrated with the communication system for other components.

Control Unit



The Sigma System incorporates Control Units that are available in two design option: compact control units for a single zone of protection (Sigma Control L) or dedicated and versatile units that can be configured according to individual needs of users or facilities (Sigma MOD LED, Sigma MOD DRV, Sigma MOD LCD).

4.0 | Gas Detector construction



5.0 | New Gas Detectors - Line 4.0

Advantages



4.0
LINE

Ultrafast measuring head

SmArtGas 4 and ProGas 4 detectors can be equipped with a most advanced measuring head that is the outcome of more than three years of research and development efforts and offers enhanced performance and response time. Owing to that innovative solution the detectors furnished with catalytic bead (pellistor) sensors are able to achieve the response time (T90) at the level of 13 seconds for methane and about 9 seconds for hydrogen gases.

IP 67

Immunity to water splashes and dust

Detectors incorporate means for additional protection of measuring components against impacts of harsh working environment (water dust) by means of an additional teflon membrane. It is the solution that makes it possible to achieve the index of protection (IP) at the level of IP67.

FLED

Safety to operators

Detectors of the 4.0 product line can be furnished with visual warning lights or stacklight with flashing LEDs (FLEDs) used as the light source. It is the advantage that enables quick and unambiguous broadcasting of information about the gaseous atmosphere within the detector vicinity since the warning lights are visible from very long distances. For instant

Wireless communication

Wireless communication and data transmission is an important novelty implemented in detectors of the 4.0 series. The solution enables extremely easy maintenance and remote calibration of field detectors deployed in the facility.

Power supply

Broad range of power supply voltages from 15 to 50 V enables easy installation regardless local conditions on site.

Insensitivity to moisture and dew

The solutions provided to heat the gas sensor enable users to get rid of adverse effects caused by condensation of steam on the sensor.

Inherent integrity

Detectors of the 4.0 product line can be operated either as components of the Gas Safety System Sigma Gas or as stand-alone devices that can be integrated with supervising systems of plant automation (e.g. by means of PLC signals 4-20 mA, RS-485 serial transmission line or actuating relays).

New hardware platform

Gas detectors of the 4.0 product line are designed on a totally new hardware platform based on a modern and high performance 32-bit microcontroller. It made possible to implement a long series of new functionalities that are highly beneficial for our customers, for instance a smart system for correction of a long-term sensor drift 'IDCs'.

5.0 | Features and properties of measuring heads

								SF6//Rx
	FL	FL.M	FH	FH.M	HL	HH	HR	HW
Flameproof construction Ex d IIC	●	●	●	●	●	●	-	-
Made of stainless steel (SS-316)	●	●	●	●	●	●	●	●
Level of protection	IP 63	●	●	●	●	●	●	●
	IP 67 *1)	-	●	-	●	-	-	-
Head heating *2)	-	-	●	●	-	●	-	-
Quick response	●	●	●	●	-	-	-	-

- *1) The head is equipped with a hydrophobic membrane. The membrane covers the sensor against the ingress of liquid water and dust, without the problem of passing gas in the areas.
- *2) The head is equipped with a sensor heating module which prevents condensation on the head and sensor elements. This solution is recommended especially for gas detectors with PID and / or NDIR sensor.
- The head is intended for operation in a reactive gas environment.
- SF6//Rx** The head is designed for the detection of sulfur hexafluoride (SF6) and refrigerant gases Rx.



FL / FH



HL



HR



HW

Devices

Gas Detector **SmArtGas 4**



The SmArtGas 4 Gas Detector is specifically designed for critical functions such as measuring, monitoring and detecting hazardous gases in industrial installations. It is intended for operation in areas with potentially explosive atmospheres and It is dedicated for operation in areas with potentially explosive atmospheres and under heavy-duty industrial conditions where parameters of ambient atmospheres may range within a broad range:

- high temperatures,
- corrosive gases or fumes,
- humidity and dust.

The detectors can be operated both as components of the Gas Safety System Sigma Gas as well as a stand-alone unit integrated with the supervising automation system (e.g. by means of control signals 4-20 mA or RS-485 communication links).

The SmArtGas 4 is meant to substitute Sigma SmArt and SmArtGas3 detectors that have already been on offer, where the key difference consists in a completely new and innovative electronic platform. The detector can be furnished with a modern measuring head ('FL', 'FH') that is the effect of three-year long research and development efforts and that offers much better metrological parameters. Owing to our innovative solutions our detectors furnished with pellistor sensors offer less than halved response times (T90) as compared to conventional equipment and are rated among fastest devices of that type with regard to the response time.

The detector structure incorporates also a Teflon® membrane that is an additional measure for protection of gas sensitive parts against environmental impacts (water, dust). It enabled us to reach the protection degree for the device interior at the level of IP67.

Additional advantages of our detectors include:

- advanced communication system with a broad range of interfaces handled,
- elevated power supply voltage (up to 50 V),
- new solutions applied to mitigate long-term drifts of catalytic sensors.

Display

Detectors are available in three manufacturing options: without a display or with a local LCD or FLED displays.

New and innovative measuring head

The new head offers much better metrological parameters. Owing to application of a pellistor sensors our detectors offer less than halved response time (T90) and are rated among fastest devices offered on the market.

Gas Sensor

Gas sensors are selected and adjusted individually to match needs of our customers with customized ranges and resolution of detection – percents of LEL or several ppm.

Devices

Gas Detector **ReAct 4**



Enclosure

Gas Detector is available in two variants - in a PES enclosure without display or in an acid-resistant steel housing with a unique four-colour FLED display.

Wide range of applications

Szeroki zakres temperatur pracy oraz obudowa wykonana ze stali kwasoodpornej lub poliestru wzmocnionego włóknem szklanym pozwala na zastosowanie czujnika na obiektach o zróżnicowanych warunkach środowiskowych.

ATEX explosion protection

The explosion proof II 3G Ex nA IIC T3 Gc obtained allows for operation in zone 2 at risk of explosion due to gas, vapours or mists on the surface of the earth.

The ReAct 4 gas detector is specifically designed for critical functions such as measuring, monitoring and detecting reactive gases in the surrounding atmosphere, with particular emphasis on aggressive or corrosive atmospheres.

It can be installed in a variety of ways:

- either integrated into the Gas Safety System Sigma Gas,
- or installed as a stand-alone detector, integrated with supervisory systems (e.g. by means of its 4-20 mA output signal or its RS-485 interface).

The ReAct 4 detector has been developed to replace our earlier Sigma ReAct device. ReAct 4 is based on a completely new electronic design. It has a new measuring head HR with significantly improved measuring properties. It also is equipped with self diagnostics properties - user is immediately informed about the failure states.

Charakterystyka urządzenia

- Różnorodność wykrywanych gazów i par.
- Szeroki zakres temperatur pracy.
- Możliwość wykonania z lokalnym wyświetlaczem FLED.
- Opcjonalne wersje obudowy: PES lub SS.

Podstawowe funkcjonalności

- Integracja z innymi urządzeniami systemu detekcji gazów Sigma Gas.
- Nieinwazyjna kalibracja i konfiguracja – czujnik może być kalibrowany i parametryzowany (np. wartości progów alarmowych) w strefach Ex bez otwierania obudowy lub wyłączenia innych części systemu detekcji gazów.
- Parametryzacja i kalibracja bez użycia części mechanicznych.
- Elektroniczna kompensacja wpływu temperatury otoczenia.
- Funkcja autodiagnostyki.
- Przechowywanie, w pamięci czujnika, parametrów takich jak: numer CAS substancji, nazwa lokalizacji, numer seryjny, czas pomiędzy obowiązkowymi kalibracjami, itp.



ReAct 4 made of stainless steel with FLED display.

6.2 | Devices

Gas Detector **ProGas 4**

4.0
LINE



The ProGas 4 Gas Detector is a device whose basic function is the measurement, monitoring and detection of hazardous gases in the surrounding atmosphere at industrial facilities.

The device can work both as part of the Sigma Gas Safety System as well as as an independent device, integrated independently with the superior automation system (e.g. through a 4-20mA signal, RS-485).

ProGas 4 can be equipped with a modern measuring head ("FL, FH"), which is the result of three years of development, with significantly improved measuring properties. Thanks to this, the sensor cooperating with the pellistor sensor achieves more than twice as fast response times (T90) * becoming one of the fastest devices. To prevent moisture condensation and its harmful effects on the Gas Detector, the interior of the "FH" gas measuring head, including the sensor, is kept at a controlled temperature of 10 °C above ambient temperature.

There is also a mechanism for additional protection of measuring elements against environmental influences (water, dust) using a Teflon membrane. This allowed to reach the IP level of IP67. Additional features include: developed connection interface, increased supply voltage (up to 50 V) and introduced mechanisms to reduce long-term drift of catalytic sensors.

New and innovative measuring head

Gas Detector can be equipped with a modern measuring head ("FL, FH"), which is the result of three years of development, with significantly improved measuring properties.

Protection class

The new design and the used materials have allowed to achieve an IP67 - using the FL.M or FH.M head.

Sensor

Gas Detector is equipped with a gas sensor selected individually for the client's needs - a wide range of applications.

Detection of SF6 and Rx gases

ProGas 4 is also intended for ongoing monitoring of the surrounding atmosphere for the presence of concentrations of sulfur hexafluoride or f-gases. The SF6 / Rx detector is equipped with an Infra-Red sensor which, while ensuring high reliability and measurement accuracy, offers very low operating costs.

Sulfur hexafluoride (SF6) – is a synthetic gas used mainly in the power industry and in the magnesium and aluminum metallurgy industries. SF6 is a greenhouse gas that is very durable in the atmosphere. Due to the above, and also due to the high cost of its production, the need to detect the presence of this gas in the surrounding atmosphere has become common.

F-gases (Rx) – these are fluorine, chlorine and carbon compounds. F-gases are mainly used for the production of aerosols in cosmetic sprayers and fire extinguishers and refrigeration equipment. Due to the high harmfulness of these compounds, the need to detect their presence has become common.

6.3 | Devices

Control Unit **Sigma Control L**



Sigma Control L is an advanced Control Unit for use with small size gas detection systems. It controls all the devices connected and integrates them to create a single Sigma Gas system.

Sigma Control L task is to read the status of detectors connected to the system and this information is presented on the display and the built-in Visual System Indicator

Basic functionalities

- Two outputs dedicated to control a visual and acoustic indicator.
- Safety – two access levels for persons who change parameters, password-protected.
- Dwustanowe wejście przeznaczone do symulacji obecności gazu (umożliwia łatwe wygenerowanie progu alarmowego w systemie).
- NC valve control.
- Three configurable binary outputs.
- It has an extension slot for adding modules to extend existing function list e.g.:
 - RS-485 output module for communication with DCS or SCADA,
 - System operation visualization module

Internal Systemic Visual Signal Device

The Control Unit is furnished with a LED display, an integrated buzzer and a Systemic Visual Signal Device that immediately inform users about overall status of the system.

Modern Design

The device was made to be user-friendly - easy to use, intuitive and clear user interface.

Extension Module

Extension Module Interface allows users to expand the functionality of Sigma Control L Unit - 78/5000 possible connectivity with DCS, SCADA systems, PLC controllers or fire protection systems.

6.4 | Devices

Control Unit Module



Alarm zones

The Modular Control Unit enables customized configuration of the Gas Safety System i.e. the number and structure of hazardous zones can be adjusted to needs of individual customers.

Simple configuration

The system can be easily extended with any number of relay outputs, signalers or detectors.

Easy integration with other systems

By means of appropriate output signals the control unit can collaborate with other automation or fire protection systems.



Control Unit Module **Sigma MOD LCD**

The Sigma MOD LCD device is the basic module that can be incorporated into Control Units for the Sigma Gas system. The key task of the module is to integrate individual appliances into an efficient and reliable Gas Safety System. In addition, the module is also responsible for receiving signals from gas detectors and other collaborating equipment. The module display and its indicating LEDs provide information about current status of the system operation, therefore statuses of each individual detectors can be checked one by one. Such a structure of the Human Machine Interface guarantees that clear and accurate information about every single detector connected to the control units is provided for operators in a very quick time.



Control Unit Module **Sigma MOD LED**

The Sigma MOD LED module enhances capacities of the Control Unit with additional relay outputs and digital inputs (DI) as well as make it possible to indicate operation status of detectors connected to the Control Unit on 8 sets of signal LEDs, where each set (column) of LEDs is assigned to maximum eight detectors. Such a structure of the user interface Interface guarantees that clear and accurate information about every single detector connected to the control units is provided for operators in a very quick time.



Control Unit Module **Sigma MOD DRV**

It is the module that is responsible for synchronization of measurements that are taken by gas detectors to compile a set of data that are acquired at the same moment of time. In addition, the module enables calibration of detectors as well as many other maintenance and troubleshooting operation when the Sigma system is in use. Owing to collaboration with the Sigma MOD LCD module operators are able to configure the entire system and individual its components from a single remote location by means of a maintenance interface.

6.5 | Devices

Warning LED Tower with Sounder **LTT**



40% LEL

20% LEL

TLV-STEL

Gas-OK / TLV-TWA / Failure

R-G-OFF



Green light
- No threats
- The devices are working properly

OK! NO HAZARDS

No light
- Potential threat
- Device, cable damaged
- Device service

Alternating or red light
- Danger
- Alarm limits exceeded

DANGER! LEAVE THE ROOM

The LTT is a unique and reliable device that is designed for operation in areas with really versatile ambient conditions. It is offered in two manufacturing options, as LTT-4 and LTT-2 devices.

LTT Warning LED Tower with Sounder comprise light modules with very bright LEDs. These light modules are independently configurable and controlled. Owing to these properties the LTT devices are really dependable and clearly visible source of detailed information about hazards that occur on the specific area.

Advantages

- Up to four stack lights with different colours and independent control (permanent light). Available colours: green, red, white, yellow and blue.
- Connection to control lines with direct voltage control or via a RS-485 communication link (Modbus RTU or Sigma BUS transmission protocol).
- Within the Sigma Gas system the LTT can act as a Visual Alarm Device for the entire system.
- The product is designed as a device that is friendly to unexperienced installers and is insensitive to inverted connection of signal lines.

Owing to the foregoing advantages the LTT is a really versatile device that is suitable for very broad range of applications.

Key Features

- GASOK Green colour signalling the correct operation of the system
- Connection line monitoring
- Information on the correct operation of master devices
- Signalling two or four alarm thresholds
- FLASH module increasing the level of security

R-G-OFF is a proprietary designation of the signaller operation logic, ensuring a very high level of people safety in the protected area.

It presents 3 main states of the signaller:

R - red colour - Danger

G - green colour - No threats

OFF - no light - Requires verification by staff



Ready to work in all conditions

The stainless steel body (SS-316) and protection class IP65 allow the use of HTT Warning Beacon with Sounder in the most demanding and aggressive environmental conditions, in the presence of dust or liquids. Thanks to this solution, the device can work for a long time while maintaining its technical parameters and aesthetic. At the same time, where required, e.g. in food processing - the material used ensures a high level of hygiene.

FLASH module

The device is equipped with a FLASH module made of High Power LEDs. The applied solution facilitates the identification of an emergency thanks to the generated flashes, causing light reflections on the elements of the technological installation. This attracts the attention of personnel and bystanders in the area of work of the device.

Thanks to the experience gained on the most demanding industrial installations and the knowledge acquired during numerous meetings with our clients, we have created a new product that stands out with its modern design and thoughtful construction.

The HTT Warning Beacon with Sounder is a unique and reliable device, designed to work in the most diverse conditions.

Careful workmanship and the use of high-quality materials, as well as an innovative optical and acoustic signaling system allowed us to create a siren that can be used in many industrial applications.

The device allows any configuration tailored to the needs of demanding customers and the specifics of a given market.

- With two-threshold acoustic signalling you can easily identify the emergency on the premises.
- The HTT Warning Beacon with Sounder thanks to its construction can work in facilities with the most demanding environmental conditions.
- HTT guarantees reliability through the use of a solution based on LEDs and a Flash Module

The application of the presented solution allows to unify the communication system on the site, thanks to which all employees can quickly and clearly determine the current level of danger in the workplace.

Clear messages

The device is equipped with LED modules that allow any configuration with the use of 5 colours and a two-threshold acoustic signalling function, thanks to which it is possible to easily identify emergency conditions on the premises. By default these are 110dB for alarm and 70 dB for alarm confirmed by the operator.

SmArtGas 4

Power supply	15 – 50 V	
• Voltage V_{cc}	0.1 – 4 W (depends on the configuration)	
• Power		
Environment	In operation	Storage
• Ambient temperatures T_a	Specified depending on:	0 – 40°C
	• the temperature class of the device (see line ATEX / IECEx below),	
	• device configuration, including the sensor used	
• Humidity	10 – 90% long term 0 – 99% short term Without condensation	30 – 90% long term
• Pressure	1013 ± 10% hPa	
ATEX / IECEx - Certificate No.	FTZU 19 ATEX 0028X / IECEx FTZU 20.0007X D=0 II 2G Ex db IIC T6...T5 Gb II 2D Ex tb IIIC T80°C...T95°C Db D = FLED / FLED.A / LCD II 2G Ex db IIC T6 Gb II 2D Ex tb IIIC T80°C Db The temperature range, temperature class, power consumption depends on the gas detector configuration and Additional requirements related to the ATEX / IECEx certificate - details in see User Manual	
IP	IP 67 (measuring head with membrane FLM, FH.M) IP 63 (other)	
Requirements to tripping time	Hydrogen $T_{90} \leq 9$ s $T_{Alarm}(T_{20}) \leq 3$ s Methane $T_{90} \leq 13$ s $T_{Alarm}(T_{20}) \leq 4$ s Propane $T_{90} \leq 17$ s $T_{Alarm}(T_{20}) \leq 4$ s Ethanol $T_{90} \leq 18$ s $T_{Alarm}(T_{20}) \leq 5$ s	
Analog output 4 – 20 mA	Sink / source	
• Output type	300 Ω	
• R_{load_MAX} (source mode)	30 V (max. voltage between pins „S” and „-“)	
• U_{s_MAX} (sink mode)		
Digital output parameters	3 x Floating contacts, NO/NC 24 V / 0.3 A, not protected against overloading	
• Relay		
Digital communication parameters	RS-485, Modbus ASCII, Sigma Bus, 19200 Bd 7E1 Teta Bus	
• RS-485		
• Teta		
Parameters of wireless communication	Bluetooth 4.2	
Integrated signalling equipment (optical)	D=LCD: alphanumeric display 2x8 of the LCD type with LED indicators D=FLED: multicolour status display LED	
Weight	3.5 kg	

ReAct 4

Power supply	15 – 50 V	
• Voltage V_{cc}	0.48 – 4 W	
• Power		
Environment	In operation	Storage
• Ambient temperatures T_a	Specified depending on:	0 – 40°C
	• the temperature class of the device (see line ATEX / IECEx below),	
	• device configuration, including the sensor used	
• Humidity	10 – 90% long term 0 – 99% short term Without condensation	30 – 90% long term
• Pressure	1013 ± 10% hPa	
ATEX	II 3G Ex nA IIC T3 Gc -40 ≤ T_a ≤ 50°C	
IP	IP 63	
Analog output 4 – 20 mA	Ang: sink / source	
• Output type	300 Ω	
• R_{load_MAX} (source mode)	30 V (max. voltage between pins „S” and „-“)	
• U_{s_MAX} (sink mode)		
Digital output parameters	3 x Floating contacts, 24 V / 0.3 A, not protected against overloading	
• Relay		
Digital communication parameters	RS-485, Modbus ASCII/RTU, Sigma Bus, od 19200 Bd 7E1 Teta Bus	
• RS-485		
• Teta		
Wbudowana sygnalizacja optyczna	D=LCD: alphanumeric display 2x8 of the LCD type with LED indicators D=FLED: multicolour status display LED	
Protection class	III	
Enclosure	Stainless steel Polyester reinforced with fiberglass	
Measuring head material	Stainless steel + PTFE	
Weight	3.5 kg	

6.7 | Devices

Basic technical specification

ProGas 4

Power supply	15 – 50 V	
• Voltage V_{cc}	0.48 – 4 W	
• Power		
Environment	In operation	Storage
• Ambient temperatures T_a	Specified depending on device configuration, including the sensor used	0 – 40°C
• Humidity	10 – 90% long term 0 – 99% short term Without condensation	30 – 90% long term
• Pressure	1013 ± 10% hPa	
IP	IP 67 (głowica z membraną FLM, FH.M) IP 63 (pozostałe głowice)	
Requirements to tripping time	Hydrogen: $T_{90} \leq 9$ s $T_{Alarm}(T_{20}) \leq 3$ s Methane: $T_{90} \leq 15$ s $T_{Alarm}(T_{20}) \leq 4$ s Propane: $T_{90} \leq 17$ s $T_{Alarm}(T_{20}) \leq 4$ s Ethanol: $T_{90} \leq 18$ s $T_{Alarm}(T_{20}) \leq 5$ s	
Analog output 4 – 20 mA		
• Output type	ang: Sink / source	
• R_{load_MAX} (source mode)	300 Ω	
• U_{s_MAX} (sink mode)	30 V (max. voltage between pins „S” and „-“)	
Digital output parameters		
• Relay	3 x Floating contacts, 24 V / 0.3 A, not protected against overloading	
Parametry komunikacji cyfrowej		
• RS-485	RS-485, Modbus ASCII/RTU, Sigma Bus, for 1200 to 115 200 bd	
• Teta	Teta Bus	
Protection class	III	
Enclosure material	Aluminium spray epoxy	
Weight	1.3 kg	
Materiał głowicy pomiarowej	Stainless steel / Stainless steel + PTFE	

Sigma Control L

Power supply	230 V AC ± 10%; 60 W	
• Voltage V_{cc}	21 - 29V DC; 60 W	
• Power		
Environment		
• Ambient temperatures T_a	For power supply 230 V ~: 0 – +40°C For power supply 24 V: 0 – +50°C	
• Humidity	10 - 90% long term, 0 - 99% short term	
IP	IP 65	
Digital input parameters		
• R_{in}	10 kΩ	
• Inactive	0 - 1 V DC any polarity	
• Active	10 - 30 V DC any polarity	
• Time parameters	The shortest pulse duration noticeable by the system is 0.2 s	
Integrated signalling equipment (visual)	LCD display, monochromatic, approx. 2,4” LED indicator	
Integrated signalling equipment (audible)	60 dB, 1 m distance	
Protection class	I – for 230 V AC power supply, III – for 24V DC power supply, Unit design according to class II	
Digital output parameters		
• Relays	3 pcs, current carrying capacity: DC1: 230 V / 0.25 A DC1: 24 V / 3 A AC1: 230 V ~ / 3 A Total current for all contacts not to exceed 3 A Active, 24 V / 1.15 A, fuse protection	
• Indicator outputs		
Digital communication parameters		
Port „DETECTORS BUS”		
• Electric standard	RS-485 non-isolated	
• Communication protocol	Sigma BUS	
Port serwisowy		
• Electric standard	USB non-isolated, class V2.0	
• Connector type	Mini-B	
Acceptable cables	0.2 – 2.5 mm ² (cable lugs 2 x 1 mm ² or 2 x 0.75 mm ² should be used for double wires)	
Enclosure material	Polycarbonate	
Weight	1.5 kg	
Mounting	4 holes for 4 mm dia. screws, spacing 189.3 x 90 mm	

6.7 | Devices

Basic technical specification

LTT

Power supply	PW-091-S 12 – 30 V DC	
• Voltage V_{cc}	PW-091-M 12 – 30 V DC	
• Power	PW-091-C 18 – 30 V DC	
• Power	8.5 W - LTT2 14 W - LTT4	
Environment		
• Ambient temperatures T_a	-40 ÷ 40 °C	
• Humidity	0 ÷ 100%	
ATEX		
• LTT 2	II 3G Ex nA IIB T3 Gc -30 ≤ T_a ≤ 40°C	
• LTT 4	II 3G Ex nA IIB T3 Gc -40 ≤ T_a ≤ 40°C	
IP	IP 65	
Digital communication parameters		
Port S		
• Electric standard	RS-485	
• Communication protocol	Sigma BUS	
Port E		
• Electric standard	RS-485	
• Communication protocol	Modbus ASCII/RTU, 4800 – 115200 bod	
Integrated signalling equipment (acoustic)	90 dB, 1 m distance	
Protection class	III	
Cable glands (diameter range)	8 – 13 mm	
Acceptable cables	0.08 – 1.5 mm ² (cable glands 2 x 1 mm ² or 2 x 0.75 mm ² should be used for double wires)	
Enclosure material	Stainless steel 1.4301, polycarbonate	
Weight	about 1 kg (LTT2), about 1.5 kg (LTT4)	
Mounting	Hanger, 2 holes for screw, diameter 5 mm	

HTT

Power supply	10 – 30 V	
• Voltage V_{cc}		
Environment		
• Ambient temperatures T_a	-30 – 40 °C	
• Humidity	10 – 90% long term 0 – 99% short term	
ATEX	II 2G pending	
IP	IP 65	
Digital communication parameters		
Port SBUS		
• Electric standard	RS-485	
• Communication protocol	Sigma BUS	
Port ExBUS		
• Electric standard	RS-485	
• Communication protocol	Modbus ASCII, RTU, 4800 – 115200 bod	
Parameter of control inputs		
• Inactive	0 – 1 V	
• Active	10 – 30 V	
Optical signalling		
• Light intensity	LED lamps maximum 60 Cd (depending on the number of modules and their colour)	
Integrated signalling equipment (acoustic)	>100dB	
Protection class	III	
Cable glands		
• Cable diameter range	10 – 16 mm (there is a possibility of execution with a cable gland with an adjustable diameter 4 – 12 mm)	
• External thread	M20 x 1.5	
Acceptable cables	0.5 – 2.5 mm ²	
Enclosure material	Aluminium, covering epoxy paint, glass cover	



For more details of our devices and other products and services offered by us, visit:

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