



GAS DETECTION SYSTEM **SDG 6000**

FLAMMABLE AND TOXIC GAS DETECTION SYSTEM

SDG 6000



The SDG 6000 gas detection system enables the detection and signalling of flammable gas leaks (natural gas - methane, propane - butane) and the exceeding of dangerous concentrations of carbon monoxide.

SDG 6000, depending on the detectors used, is intended for use in garages, enabling precise detection of the occurring hazard and immediate control of ventilation or smoke exhaust devices installed in the endangered space. It can also be used in gas boiler rooms where, after detecting leaks in the system or exceeding the permissible concentrations of harmful gases, the control panel will be able to control the valve that cuts off the gas supply to the building.

The addressable detection system is complemented by autonomous ASG-2000 gas detectors, which can operate as independent detection device or form small installations of cooperating detectors. Autonomous ASG-2000 gas detectors, like their addressable counterparts PSG-6000, come in several variants and can analyse the detection of combustible gases and carbon monoxide.

The SDG 6000 gas detection system, cooperating with fire detection and alarm systems, allows for comprehensive protection of buildings, e.g. newly built housing estates with underground garages.

The SDG 6000 gas detection system has been developed taking into account the feedback and suggestions of our customers and users of the system. This resulted in a set of cooperating devices, allowing for selection of its components in such a way as to optimally match the needs and conditions in the protected facilities.

The gas detection system offered by POLON-ALFA is, in terms of possibilities of cooperation with building security systems, **the most flexible system on the market.**

A properly designed, installed and maintained system ensures the safety of facilities and people.

Name	Description
CDG 6000-16	control panel version for 16 detectors
CDG 6000-99	control panel version for 99 detectors
CDG 6000-16 with a latch	control panel version for 16 detectors with AKC-6000 adapter
CDG 6000-99 with a latch	control panel version for 99 detectors with AKC-6000 adapter
mCDG 6000-2	support for 2 detectors
mCDG 6000-4	support for 4 detectors
mCDG 6000-8	support for 8 detectors
PSG-6000	addressable gas detectors
ASG-2000	autonomous gas detectors
AKC-6000	digital communication adapter
TO-6000	warning signs
OD-1	bumper-cover for detectors
PMG-1	mask for testing

OUTSTANDING FLEXIBILITY OF CONTROL CONFIGURATION

CDG 6000



CDG 6000 gas detection control panel

The CDG 6000 addressable gas detection control panel is designed to signal the leakage of combustible gases (CNG, LPG) and dangerous concentrations of carbon monoxide (CO), after receiving information from the PSG-6000 gas detectors cooperating with it. The control panel activates acoustic and visual alarm signalling, allows ventilation to be started in order to remove the excess of harmful gases from the room and can give a signal to control the gas shut-off valve. By means of the built-in control lines, it is possible to check the state of the controlled external signalling and actuating devices.

CDG 6000 control panel (also in mCDG 6000 versions) as **the only one, currently offered for sale on our market**, has the ability to transmit information about the alarm (using a digital protocol through the AKC 6000 digital communication adapter) to the POLON 6000 fire alarm systems installed in the facilities. The device is additionally equipped with the ModBus/RTU protocol which enables communication with control and monitoring systems using the RS-485 transmission standard.

The CDG 6000 control panel can signal three levels of alarm associated with the corresponding gas concentrations reported by the associated detectors. It identifies alarming detectors and provides relevant information on the display. The control panel has an extensive system of its own diagnostics, as well as connected external devices. Similarly to the alarms, information on the occurring faults in the system is provided on the control panel display. The information is also saved to the internal memory of the control panel in the form of an event log. Configuration and programming of the CDG 6000 control panel, as well as reading the history of events, is carried out using the Configurator CDG 6000 computer application.

Addressable detectors of the PSG-6000 type work on a specially designed detection line that can be set in two modes, as a radial or a looped line. This ensures that the system is able to work properly even if the line is interrupted at one point. The detectors have built-in short-circuit isolators that, when tripped, isolate the short-circuit in the line, so that the maximum number of detectors continues to operate properly.

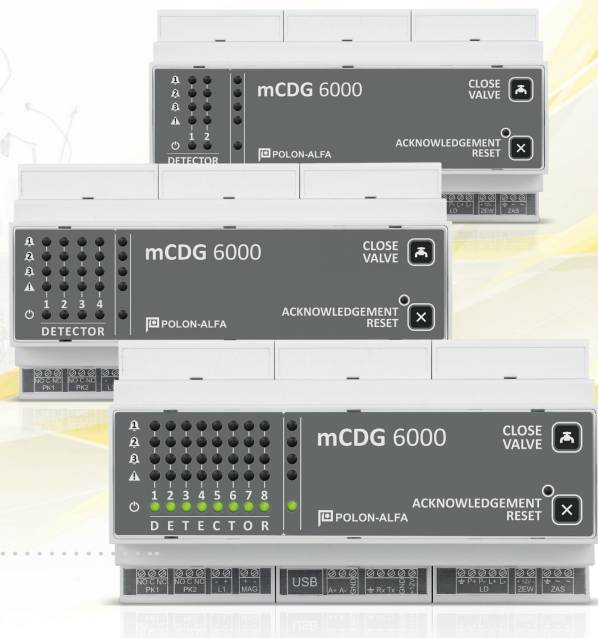
Technical data

Power supply:	
• basic - mains	230 V + 10% - 15% / 50 Hz
• backup - battery 1 pc.	12 V / 2,3 Ah
Number of detector lines	1
Cooperating gas detectors	type PSG-6000 and PSG-6100
Maximum number of detectors on the line	16/99
Number of relay outputs	4
Load capacity of the relay outputs	8 A / 30 V DC, 8 A / 250 V AC
Shut-off valve control output	12 V / 11 A
Number of control lines	4
Control pulse time	0,2 s to 1 s
Number of distinguished input states	3 + 2 (short-circuit and opening)
Output load for powering external devices:	
• version CDG 6000-16	0,5 A / 12 V
• version CDG 6000-99	1 A / 12 V
Number of recorded events	5000
Operating temperature range	from -10°C up to +55°C
Housing tightness	IP 54
Dimensions (without glands)	300 x 230 x 86 mm
Weight (without battery)	< 2,3 kg

Name	Description
CDG 6000-16	control panel version for 16 detectors
CDG 6000-99	control panel version for 99 detectors
CDG 6000-16 with a latch	control panel version for 16 detectors with AKC-6000 adapter
CDG 6000-99 with a latch	control panel version for 99 detectors with AKC-6000 adapter

**[SIMPLE INSTALLATION
= LOW COST]**

mCDG 6000



mCDG 6000 gas detection control panel

The mCDG 6000 addressable gas detection control panel is designed to detect and signal the leakage of flammable gases and dangerous concentrations of carbon monoxide, after receiving information from gas detectors cooperating with it. The control panel has 1 detection line and is made in 3 versions. It also has 2 potential-free outputs for controlling external devices and 1 universal output that can act as a potential output with continuity monitoring or as a control input. The device is additionally equipped with the ModBus/RTU protocol, enables integration with the POLON 6000 system via AKC-6000 and a signal output to control the gas shut-off valve.

The detectors are connected to the mCDG 6000 control panel via a specially designed supervisory line. Each detector is assigned an address. Thanks to this, the control panel has information about the status of each of the detectors. The detector line can operate in two modes - as radial or loop. In loop line mode, the end of the line is connected to the control panel. This ensures that the system is able to work properly even if the line is interrupted at one point. The detectors have built-in short-circuit isolators which, when activated, isolate the short-circuit in the line so that the maximum number of detectors will continue to work properly.

The mCDG 6000 control panel can signal three levels of alarm associated with the corresponding gas concentrations reported by the associated detectors. The control panel identifies alarming detectors by providing information using the control panel indicators. The control panel has an extensive system of its own diagnostics, as well as connected external devices. Similarly to alarms, a full list of faults is available on the device panel.

The control panel has an output intended for controlling triggering of shut-off valves. The output generates a pulse equal to the supply voltage and has a built-in protection to limit the maximum current to 50 mA. The pulse time can be programmed in the range of 0.2 to 1 s. The output has a software protection against destruction of the valve solenoid. The protection limits the possibility of the valve tripping earlier than after the specified time interval.

Dane techniczne

Primary power supply	+10 V ÷ +25 V DC
Maximum current consumption	3,15 A
Number of detector lines	1
Compatible gas detectors:	
• PSG-6000	
• PSG-6100	
Max. number of detectors per line	8/4/2
Current consumption from the detection line / line length (optional)	50 mA / 2 x 45 Ω, 22 mA / 2 x 75 Ω, 20 mA / 2 x 100 Ω
Max resistance between elements	40 Ω
Maximum allowable line capacity	300 nF
Number of relay outputs	2
Load capacity of relay outputs	5 A / 30 V DC, 5 A / 250 V AC
Shut-off valve control output	control panel supply voltage / 50 mA
Control pulse time	0,2 s to 1 s
Universal output in potential output mode:	
Output voltage	Control panel supply voltage
Maximum output current	1,5 A
Output load for powering external devices or detectors	0,5 A
Number of recorded events	5000
Working temperature range	from -5°C to +40°C
Weight	< 0,25 kg
Dimensions	160 x 100 x 65 mm

Name	Description
mCDG 6000-2	support for 2 detectors
mCDG 6000-4	support for 4 detectors
mCDG 6000-8	support for 8 detectors

RELIABLE COMMUNICATION

AKC-6000



AKC-6000 digital communication adapter

Digital communication adapter AKC-6000 is an addressable element designed for integration of external devices with the POLON 6000 system.

It is designed to work in addressable detection lines of the POLON 6000 fire alarm control panels.

The AKC-6000 communicates with an external device via serial data transmission.

Communication between the POLON 6000 control panel and the AKC-6000 digital communication adapter is carried out by means of a two-wire addressable detection line. The unique and fully digital communication protocol allows any information to be transmitted from the control panel to the adapter and from the adapter to the control panel. AKC provides opto-isolation between the POLON 6000 system and the external device.

The device is equipped with an internal short-circuit isolator, which cuts off the efficient part of the detection line from the adjacent short-circuited part, which enables its further uninterrupted operation.

The AKC-6000 digital communication adapter is made in the form of a printed circuit board, with electronic components and a set of connectors, and the whole is placed in the housing.

The housing has holes in the corners for wall mounting. Cable grommets are mounted in the base of the housing, along its longer side.

The M16 cable grommets are used to feed the detection line and data cables to an external device. The housing cover is attached to the housing base with four screws.

Technical data

Detection line operating voltage	16,5 ÷ 24,6 V
Detection line current consumption	< 150 µA
Supply voltage from external device	5 ÷ 28 V
Current consumption from an external device	1 mA
Operating temperature	from -10°C to +55°C
Communication with the external device	series data transmission
Length of the data transmission line with an external device	≤ 1 m
Cable insertion:	
• cable grommet for detection lines	2 x M16
• cable grommet for communication with the external device	M16
Permissible conductor cross-section	up to 1,5 mm ²
Dimensions	125 x 101 x 35 mm
Weight	< 0,20 kg
Permissible relative humidity	up to 95% at 40°C
Protection degree	IP 66

Please note

The product has been granted the Certificate of constancy of performance issued by CNBOP-PIB, the notified body No. 1438 which confirms that the product has the characteristics/technical parameters required by the EN 54-18:2005 + AC:2007, EN 54-17:2005 + AC:2007 standards.

The features/technical parameters exceeding the requirements of the listed standards and other features/parameters of the product not specified by the listed standards are confirmed by the manufacturer.

The manufacturer has issued a Declaration of Performance for the product.

Name	Description
AKC-6000	digital communication adapter
Adaptor clip AKC-6000	to install the AKC-6000 adapter inside the CDG 6000 control panel



POLON 6000



PPW-40Ex



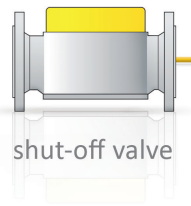
ROP-4007



SAW-6006

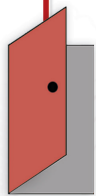
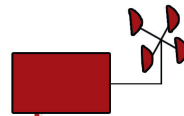
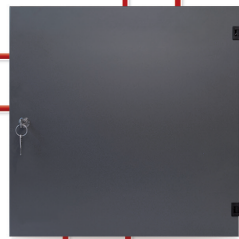


SAW-6006



shut-off valve

PP-61 UCS 6000



PO-63



DUR-40Ex



DUR-40Ex



DUT-6046

DUT-6046

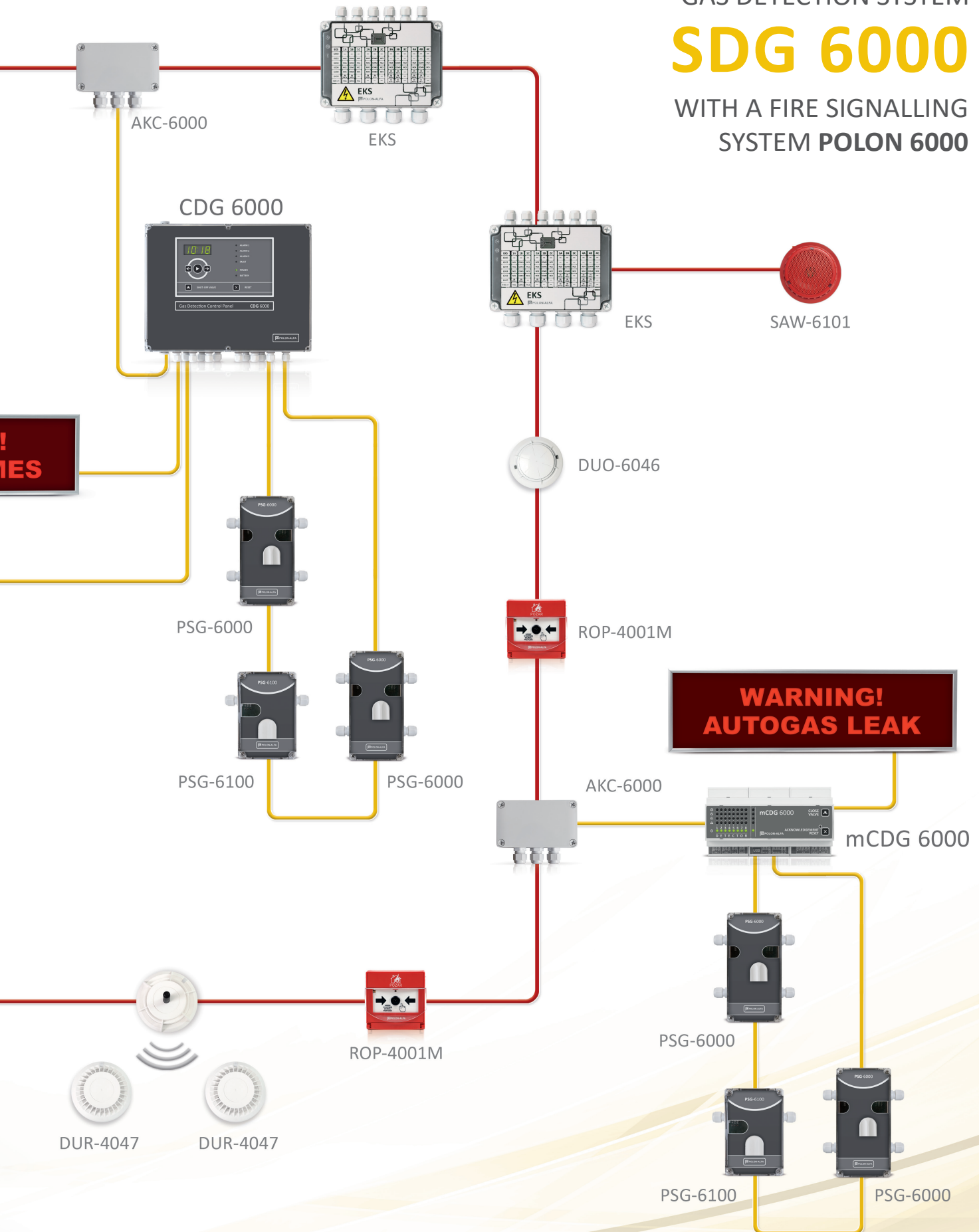
ADC-4001M

well designed SAFETY

COOPERATION OF
GAS DETECTION SYSTEM

SDG 6000

WITH A FIRE SIGNALLING
SYSTEM POLON 6000



**ACCURATE
LOCATION**

PSG-6000



Addressable gas detectors type PSG-6000

Addressable gas detectors type PSG-6000 are designed to detect and continuously monitor the presence of flammable and toxic gases in rooms at risk of their emission, especially in garages and boiler rooms. Each detector has three pre-set alarm thresholds related to a specific gas concentration level in the air. When these limits are exceeded, the detectors transmit information to the associated CDG 6000 control panel. Statuses related to sensor damage or the need to calibrate it are also transmitted to the control panel. The detectors have built-in replaceable gas sensor modules.

The PSG-6000 type detectors operate only on the detection lines of the CDG 6000 addressable gas detection control panels. They require an additional power supply from a 12 V or 24 V DC voltage source (except for PSG-6103).

Addressable detectors of the PSG-6000 type are available in the following versions:

Detector	Gas detected	External power supply
PSG-6001	CNG (natural gas-methane)	9 ÷ 30 V DC
PSG-6002	LPG (propane-butane)	9 ÷ 30 V DC
PSG-6003	CO (carbon monoxide)	9 ÷ 30 V DC
PSG-6103	CO (carbon monoxide)	only from the detection line

Technical data

Power supply:

- PSG-600x external 9 ÷ 30 V DC
- PSG-6103 from the detection line

Current consumption from an external source:

- PSG-600x 30 mA / 12 V, 15 mA / 24 V

Current consumption from the detection line:

- PSG-600x < 150 µA
- PSG-6103 < 250 µA

Sensor type:

- PSG-6001, PSG-6002 semiconductor
- PSG-6003/PSG-6103 electrochemical

Sensor lifetime up to 10 lat

Surveillance radius ≤ 9 m

Supervision area up to 250 m²

Number of alarm thresholds 3

Alarm thresholds:

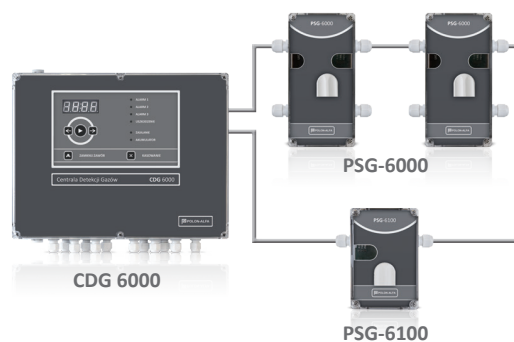
- PSG-6001 A1 = 10%, A2 = 20%, A3 = 30% DGW
- PSG-6002 A1 = 10%, A2 = 20%, A3 = 30% DGW
- PSG-6x03 A1 = 30 ppm, A2 = 60 ppm, A3 = 150 ppm

Operating temperature range from -20°C to +50°C

Housing tightness IP 54

Dimensions:

- PSG-600x 124 x 160 x 68 mm
- PSG-6103 124 x 120 x 68 mm



HIGHER LEVEL
OF SECURITY

ASG-2000



Autonomous gas detectors type ASG-2000

Autonomous gas detectors type ASG-2000 are designed to detect the presence of flammable and toxic gases in rooms at risk of their emission, especially in garages and boiler rooms. Each detector has three pre-set alarm thresholds related to a specific gas concentration level in the air. When they are exceeded, optical signalling in the detectors is turned on and appropriate outputs controlling external acoustic-optical signalling are activated. It is also possible to start ventilation system, in order to ventilate and remove excess harmful gases from the room.

ASG-2000 detectors are designed for independent operation, but they can be combined to form small gas detection systems. The detectors have built-in replaceable gas sensor modules to reduce operating costs. The need to calibrate the sensors is signalled. The detector housings provide a high degree of tightness protection, allowing them to be installed in harsh environments. The detectors are powered from an external 12 V (24 V) power supply or from a 230 V AC source.

Autonomous ASG-2000 detectors are available in the following versions:

Detector	Gas detected	External power supply
ASG-2001	CNG (gaz ziemny-metan)	9 ÷ 30 V DC
ASG-2001HV	CNG (gaz ziemny-metan)	~230 V AC
ASG-2002	LPG (propan-butan)	9 ÷ 30 V DC
ASG-2002HV	LPG (propan-butan)	~230 V AC
ASG-2003	CO (tlenek węgla)	9 ÷ 30 V DC
ASG-2003HV	CO (tlenek węgla)	~230 V AC

Technical data

Power supply:

- ASG-200x 9 ÷ 30 V DC
- ASG-200xHV 230 V ± 10% AC

Max current consumption via ASG-200x

120 mA / 12 V, 60 mA / 24 V

Sensor type:

- ASG-2001/HV, ASG-2002/HV semiconductor
- ASG-2003/HV electrochemical

Sensor lifetime

up to 10 years

Surveillance radius

≤ 9 m

Supervision area

up to 250 m²

Number of relay outputs

3

Number of alarm thresholds

3

Alarm thresholds:

- ASG-6001 A1 = 10%, A2 = 20%, A3 = 30% DGW
- ASG-6002 A1 = 10%, A2 = 20%, A3 = 30% DGW
- ASG-6x03 A1 = 30 ppm, A2 = 60 ppm, A3 = 150 ppm

Total load capacity of the alarm

relay contacts 3 A / 30 V DC, 3 A / 250 V AC

Operating temperature range

from -20°C to +50°C

Housing tightness

IP 54

Dimensions

80 x 216 x 68 mm

WARNING VARIANTS

TO-6000

**DO NOT ENTER!
EXCESS FUMES**

**WARNING!
EXCESS FUMES**

Warning signs TO-6000

TO-6000 warning boards are designed for visual and acoustic signalling of alarm states, in cooperation with gas detection systems.

The boards are available in low and high voltage versions. Additionally, regardless of the supply voltage, a single or double-sided version of the board is available (the illuminated text is on both sides of the device).

Regardless of the above options, a version with sound signalling is also available.

The casing is made of an aluminium frame, and the front part of the board is made of opaque, red-coloured material, with an inscription complying with the available variant or customer order.

Technical data

Power supply version low voltage / power max.	9 ÷ 30 V DC / 2 W max
Power supply voltage high voltage / power max.	230 V AC, 50 Hz / 4 W max
The volume of the optional acoustic signalling is approx.	72 dB
Dimensions	559 x 159 x 22,5 mm
The weight of the device in low-voltage/high-voltage version	1 kg / 1.1 kg
Operating temperature range	from -10°C up to +55°C
Permissible relative humidity	up to 95% at 40°C
Protection degree	IP42

Variant number	Type of inscription
1	WARNING! EXCESS FUMES
2	DO NOT ENTER! EXCESS FUMES
3	LEAVE THE GARAGE! EXCESS FUMES
4	DO NOT ENTER! EXCESS FUMES
5	WARNING! AUTOGAS LEAK
K	the type of inscription is specified by the client

Name	Description
TO-6000-N	Board 9-30 V DC, without sound signal, single-sided
TO-6001-N	Board 9-30 V DC, without sound signal, double-sided
TO-6010-N	Board 9-30 V DC, with sound signal, single-sided
TO-6011-N	Board 9-30 V DC, with sound signal, double-sided
TO-6100-N	Board 230 V AC, without sound signal, single-sided
TO-6101-N	Board 230 V AC, without sound signal, double-sided
TO-6110-N	Board 230 V AC with sound signal, single-sided
TO-6111-N	Board 230 V AC with sound signal, double-sided

*N - variant number of the highlighted text

SAFETY OF DETECTORS

OD-1



Bumper OD-1

The bumper is designed to protect addressable gas detectors type PSG-6000 and autonomous gas detectors type ASG-2000 against the effects of mechanical damage, caused by carelessness or deliberate action of third parties.

The bumper is designed to absorb the energy of crushing at the moment of impact. At the same time, the design allows access to the detector for service purposes without prior disassembly.

Application area:

- garages and underground car parks in residential and office buildings, shopping malls, etc.,
- diagnostic stations and car workshops,
- production and storage halls,
- all kinds of spaces in which gas detectors are installed, for which additional mechanical protection is provided.

Accessories

The set includes 4 screws and dowels for concrete.

Technical data

Material	structural steel S235 JR, powder coated (rod \varnothing 16 mm and bracket made of sheet metal 3 mm thick)
Working temperature	from -30°C to +70°C
Dimensions	200 x 170 x 110 mm
Weight	\leq 1,45 kg

Name	Description
OD-1	Bumper for detectors

SIMPLE MAINTENANCE

PMG-1



Mask for testing PMG-1

The PMG-1 mask is designed for administering test gas to gas detectors produced by POLON-ALFA S.A. of the PSG-6000 and ASG-2000 types - during operating checks of these devices.

The mask is equipped with a flexible hose for low reactive gases in high concentration mixtures (e.g. methane, propane-butane, carbon monoxide).

Technical data

Recommended test gas flow	0,5 l / min
Operation temperature	from -10°C to +40°C
Dimensions	50 x 36 x 20 mm
Hose diameter	ø 6 / 4 mm
Hose length	1,6 m

Name	Description
PMG-1	Mask for testing

Recommended scheme of the control system

