



Warsaw

USER MANUAL

release: 3W4cW5a

WG.EG

Economical ventilation controller
in CLOSED GARAGES

[W4c], [W5a] series

Read the USER MANUAL in its entirety
BEFORE installation.

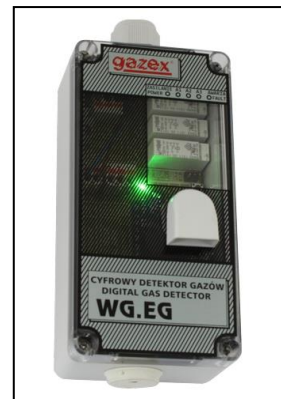
Proceed with the installation

once you have fully understood this manual.



- to ensure safety during installation
and operation of the detector, it is essential
to comply with the recommendations and
warnings in this User Manual bearing this symbol.

Keep this manual for reference by the User of the gas detection system.



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Meaning of the graphical symbols on the device:

	PLEASE NOTE! If this symbol is present, refer to the safety instructions in the user manual to understand the nature of potential hazards and all measures to be taken to avoid them.
	INFO! If this symbol is present, refer to the device's user manual for correct installation and safe operation of the device.
	The device is to be supplied with DC voltage.
IP54	Degree of protection of the device enclosure in accordance with EN 60529
	Pursuant to the Act of 11 September 2015 on Waste Electrical and Electronic Equipment, a used module may not be disposed of together with other household waste. It should be transferred to a specialised waste collection point. Proper waste disposal protects against the adverse effects on human health and the environment.

PRODUCER:

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GLOSSARY OF TERMS USED IN THIS MANUAL:

- WG.EG** – digital gas detector (for carbon monoxide, propane-butane, natural gas or other gases), economical version – WG-*nn*.EG, WG- *nn*.EG/A or WG-*nn*.EG/A24 models (where *nn* stands for the gas code the detector is designed to detect); *nn*: 22 = carbon monoxide, 15 = propane-butane, 11 = methane (natural gas), 14 = methane (selective), 73 = hydrogen (selective), 24 = carbon monoxide and methane (two-gas sensor), 25 = carbon monoxide and propane-butane (two-gas sensor), 28 = carbon monoxide and carbon dioxide (two-sensor version), 8R8 = carbon dioxide, 20 = carbon monoxide and nitrogen dioxide (dual-sensor version), 0E/NO2 = nitrogen dioxide;
- gas detector** – a device that converts the changing concentration of a gas, mist, or vapour of a specific substance in the air into an electrical signal;
- gas sensor** – an electronic component that is sensitive to changes in the concentration of gas in the air;
- calibration gas** – a type of gas or substance vapour used to set alarm thresholds (usually: the medium the device is designed to detect);
- A1** – detector alarm status = means that the concentration of the calibration gas around the detector exceeds the value of the first (lowest) alarm threshold within a certain time frame (e.g. average value for the last 15 minutes) or the concentration value of the first alarm threshold;
- A2** – detector alarm status = means that the concentration of the calibration gas around the detector exceeds the value of the first and the second (higher) alarm threshold within a certain time frame (e.g. average value for the last 15 minutes) or the concentration value of the second alarm threshold;
- A3** – detector alarm status = means that the concentration of the calibration gas around the detector exceeds the value of the third (highest) alarm threshold or the concentration value of the third alarm threshold;
- A1/A2/A3 value designations: (**s15**) = average value over the last 15 minutes, (**p2**) = instantaneous exceedance of the concentration value, (**w1**) = concentration above a threshold for at least 1 minute.
- calibration** – verification of the detector or sensor module's response to the calibration gas and adjustment of the alarm levels to match the prescribed A1, A2, A3 values;
- short calibration certificate** (SSW) – a document confirming the correctness of the detector's response (A1, A2, A3 status) to the medium specified in the document, at specified concentrations, under specified conditions;
- MAC** – the maximum allowable concentration of a harmful substance in the working environment (pursuant to the Ordinance of the Minister of Family, Labour and Social Policy of 12 June 2018, Dz.U. [Polish Journal of Laws] 2018, item 1286, as amended); time-weighted average concentration value over 8h;
- LEL** – the lower explosive limit of a given flammable substance – the highest volumetric concentration of a mixture of a flammable gas or vapour with air, below which no explosion of the mixture can occur (values for individual substances in accordance with EN ISO/IEC 80079-20-1);
- ppm** – parts per million; **v/v** – volume per volume
- <t₁/t₂** – time limit for the occurrence of a given factor described as 'periodic' or 'instantaneous' – means: over a period of time no longer than t₁ within a period of time no shorter than t₂.

1. INTENDED USE

The WG.EG type detector is designed to monitor the concentration of CO or propane-butane or natural gas (or other gases e.g. hydrogen, NO₂, CO₂) in closed garages. It features an interchangeable sensor module with three independently calibrated alarm thresholds (factory-set). It is therefore particularly suitable for controlling exhaust gas concentration or detecting LPG, hydrogen or CNG gas leaks from vehicles equipped with gas installations. Range of applications as a ventilation controller:

- Underground GARAGES and car parks;
- vehicle inspection stations.

The ventilation is controlled via NO contact outputs, one for each alarm threshold.

The device is compatible with detection systems equipped with any of the WG... detectors manufactured by GAZEX; it is also possible to combine it 'directly' with older generation WG-*nn*.EN type detectors.

Includes a smart, INTERCHANGEABLE PROC sensor module (supporting a verification and calibration procedure without opening the enclosure) = enables simple and low-cost operation/maintenance and fast repair.

Information on the type of the sensor module and the recommended recalibration (calibration) date is included on the yellow calibration label next to the device's nameplate.

Since the detector incorporates a thermal compensation circuit, it can be used under variable temperature conditions.

The design of the detector is conventional and the device must not be used in areas classified as hazardous in terms of gas, vapour or dust explosion.

TABLE 1. Matching table for selected models

MATCHING TABLE	CO (carbon monoxide)			CNG (natural gas) [H ₂ hydrogen]			LPG (propane-butane)			CO (carbon monoxide) + CNG (natural gas)			CO (carbon monoxide) + LPG (propane-butane)		
	WG-22.EG	.../A	.../A24	WG-11.EG (WG-14.EG) [WG-73.EG]	.../A	.../A24	WG-15.EG	.../A	.../A24	WG-24.EG	.../A	.../A24	WG-25.EG	.../A	.../A24
MODEL															
Sensor model	MS-22.EG			MS-11.EG (MS-14.EG) [MS-73.EG]			MS-15.EG			MS-24.EG			MS-25.EG		
Nominal supply voltage	230 VAC	12V $\overline{\text{~}}$	24 V $\overline{\text{~}}$	230 VAC	12 V $\overline{\text{~}}$	24 V $\overline{\text{~}}$	230 VAC	12 V $\overline{\text{~}}$	24 V $\overline{\text{~}}$	230 VAC	12 V $\overline{\text{~}}$	24 V $\overline{\text{~}}$	230 VAC	12 V $\overline{\text{~}}$	24 V $\overline{\text{~}}$

CO – CARBON DIOXIDE, as a colourless and odourless gas (*undetectable by the human senses*), only slightly lighter than air (it is affected by convective movements and mixes easily with air), is a **very dangerous** agent threatening human **health and life**.

CARBON DIOXIDE, as a product of incomplete combustion of hydrocarbons, is almost always present in the exhaust gases of vehicles with internal combustion engines. This is particularly the case for improperly adjusted or cold-started engines (a cold catalytic converter does not work effectively). Carbon monoxide is easily absorbed through the lungs and permanently binds to haemoglobin, causing cerebral and systemic hypoxia. As a result (*under conditions of a high concentration of CO in the inhaled air or a long absorption time*), it leads to loss of consciousness and a **quick death!!!**

In order to raise awareness of the hazard caused by the presence of CARBON MONOXIDE in the air inhaled by humans, the following table, based on the Material Safety Data Sheet issued by the Central Institute for Labour Protection – National Research Institute (CIOP-PIB), is presented.

EFFECT OF CARBON MONOXIDE ON HUMANS according to CIOP-PIB


concentration of CO in the air	INHALATION TIME and observed POISONING SYMPTOMS
~ 50 ÷ 200 ppm (60 ÷ 240 mg/m ³)	slight headache after a few hours
 ~ 400 ppm (450 mg/m ³)	headache, nausea, vomiting, muscle weakness, apathy after a period of 1 to 2 hours
~ 800 ÷ 900 ppm (900 ÷ 1000 mg/m ³)	collapse, loss of consciousness after 2 hours
~ 1500 ÷ 1700 ppm (1800 ÷ 2000 mg/m ³)	collapse within 20 minutes, risk of DEATH after 2 hours
~ 3400 ppm (4000 mg/m ³)	collapse after 5–10 minutes, risk of DEATH after 30 minutes
~ 7000 ppm (8000 mg/m ³)	collapse after 1–2 minutes, risk of DEATH after 10–15 minutes
~ 13000 ppm (15000 mg/m ³)	DEATH after 1 to 3 minutes !

TABLE 1.1.

Please note: 1% vol. = 10,000 ppm = ~8,600 mg/m³ (for CO)

LPG (autogas) – the most common gaseous fuel for internal combustion engine vehicles. It is a mixture of flammable hydrocarbons, mainly propane and butane, much heavier than air (1.5 ÷ 2 times); highly explosive when mixed with air – the lower explosion limit for butane is 1.4 % and for propane 1.7 % by volume in air. In vehicles, it is transported in metal pressure tanks with a typical capacity of 30÷50 litres. Assuming a tank filling of approximately 75% of the usable capacity of an average tank (~40 litres), we can expect about 30 litres of LPG to be present. When the gas installation (*including the tank*) is leaking and the leaking fuel is vaporised, about 7.5 m³ of gas is released into the premises, which can create about 480 m³ of explosive mixture. Assuming that all of this mixture is 'spilled' onto the floor and remains in the ground layer (it is much heavier than air) and is about 30 cm thick – it will create a real hazard in an estimated area of about 1,600 m² of underground car park!!! In such a situation, it is not difficult to imagine the consequences of throwing a cigarette stub on the floor!

CNG (compressed natural gas) – an increasingly popular, low-cost fuel for delivery vehicles and public transport. Its main flammable component is methane, a gas that is considerably lighter than air (about 0.55 of the density of air), forming an explosive mixture already at 4.4 % by volume in air. Assuming an average capacity of one high-pressure (~20 MPa) CNG tank of about 100 litres and a 75% filling level, we can expect about 15 m³ of methane to leak from a leaking vehicle gas system. Since it is lighter than air, it can form an approx. 340 m³ of explosive mixture under the ceiling of a room. Assuming a layer of approx. 30 cm is formed under the ceiling, this results in more than **1,100 m²** of usable floor space (e.g. garage, workshop) at real risk of explosion. It is important to mention here that, in order to increase the driving range, vehicles are fitted with multi-tank CNG supply units, which can potentially increase the risk.



The aforementioned sizes of the potential gas explosion danger zone are a rough estimate of the amount of leaking gas and the assumption of an undisturbed diffusion zone (no ventilation) in the room = they may not reflect the actual danger, which may be much lower or many times higher!!!

Illustrative diagram of ventilation control in underground garages

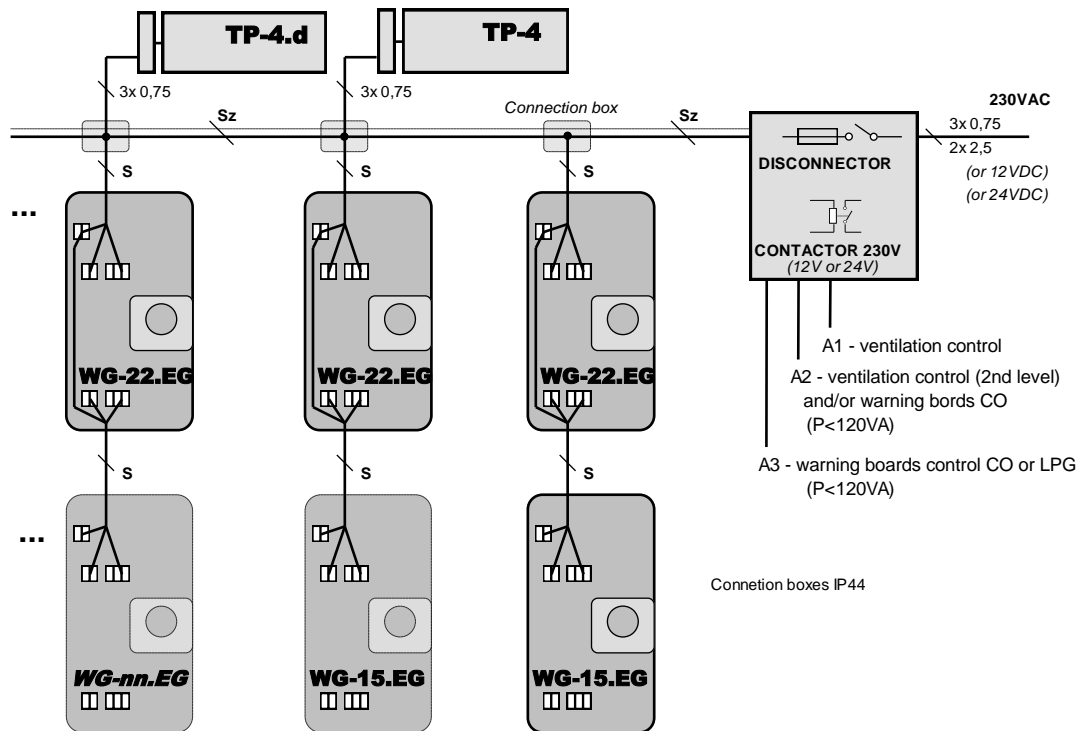


FIG. 1.1.

Recommended connection wires with the WG.EG in the system

The WG.EG removable connectors can be used to connect wires with multi-strand conductors (stranded cable), e.g. YSLY

(without ferrules!), or with single-strand conductors, e.g. YDY

TABLE: wire matching	System with a common contact output terminal connected to 'L' or to 'N' (as WG-nn.EN) ** [number of conductors] x [conductor cross section in mm ²].		System with separation of contact outputs** (as WG-nn.NG, WG-nn.EN/G) [number of conductors] x [conductor cross section in mm ²].	
	WG-nn.EG	WG-nn.EG/A... *	WG-nn.EG	WG-nn.EG/A...
2-threshold system (without fault signalling)				
Supply and control line Sz	5x (0.75 ÷ 1.5)	2x 2.5 + 2x 0.75	6x (0.75 ÷ 1.5)	2x 2.5 + 2x 0.75
Connection line S	5x (0.75 ÷ 1.5)	4x (0.75 ÷ 1.5)	6x (0.75 ÷ 1.5)	5x (0.75 ÷ 1.5)
3-threshold system***				
Supply and control line Sz	6x (0.75 ÷ 1.5)	2x 2.5 + 2x 0.75	7x (0.75 ÷ 1.5)	2x 2.5 + 2x 0.75
Connection line S	6x (0.75 ÷ 1.5)	5x (0.75 ÷ 1.5)	7x (0.75 ÷ 1.5)	6x (0.75 ÷ 1.5)
System supply voltage	230 VAC	12 V $\overline{=}$ or 24 V $\overline{=}$	230 VAC	12 V $\overline{=}$ or 24 V $\overline{=}$

* - to be used only with relatively short wired connections (small number of detectors)

** - to be set with internal jumper by installation technician (factory setting: shorted to 'L')

*** - also applicable for 2-threshold system with fail-safe output



PLEASE NOTE: When selecting all connecting wires, it is also necessary to take into account the requirements for the appropriate class of reaction to fire, according to Regulation (EU) No 305/2011 of the European Parliament and of the Council of 9 March 2011 (CPR), depending on the installation point in the building. Detailed regulations in this regard can be found in N SEP-E-007:2017-09 or in relevant legislation as it is published from time to time.

2. TECHNICAL PARAMETERS

TABLE 2.1.

System supply	230 VAC ($\pm 10\%$), 50 Hz; 12 V ($9.0 \div 15$ V) for WG-nn.EG/A; 24 VAC/ ($12 \div 30$ V) for WG-nn.EG/A24-....
Power consumption	max. 3W (for WG-nn.EG/A: max 0.14 A @ 12 V)
Gas sensor type – for the different models (nn)	semiconductor (11, 14, 15, 73, 22, 24, 25, 28, 20); optical Infra Red: (8R8, 28); estimated service life in clean air ~10 years; electrochemical (20, 0E/NO ₂); estimated service life in clean air ~2 years; EXCHANGEABLE with processor module
Operating temperature	recommended: $-10\text{ }^{\circ}\text{C} \div +45\text{ }^{\circ}\text{C}$; admissible periodically (<1h/24h): $-20\text{ }^{\circ}\text{C} \div +50\text{ }^{\circ}\text{C}$; at relative humidity of $35 \div 90\%$ (non-condensing)
Detectable gases (nn)	<div> <div>22 - carbon monoxide; 15 - propane-butane, other HC; 11, 14 - methane, other hydrocarbons; 24 - carbon monoxide and methane; 25 - carbon monoxide and LPG</div> <div>8 - carbon dioxide; 28 - carbon monoxide and carbon dioxide; 20 - carbon monoxide and nitrogen dioxide; 73 - hydrogen; 0E/NO₂ - nitrogen oxide</div> </div>
Gases interfering with gas sensor operation (nn)	significant oxygen shortage (<18 vol. %), large increases in humidity, chlorine (excluding 28 and 8R8) and 22: hydrogen (>100 ppm), ethanol (>1 % vol.); 15, 11: hydrocarbons, hydrogen, alcohols; 14: hydrogen (practically non-reactive to propane, butane, hexane, alcohols); 73: methane (practically non-reactive to propane, butane, hexane, alcohols); 24: for CO – as '22', for methane – as '14'; 25: for CO – as '22', for LPG – as '15'; 28, 8R8: for CO – as '22', selective for CO ₂ ; 20, 0E/NO ₂ : for CO – as '22', chlorine, hydrogen sulphide
Response time	approx. 40 sec. (when testing with gas as per SSW)
Protected garage area	approx. 200 m ² per detector (continuous space around the detector, depends on multiple factors)
Alarm thresholds (nn)	22: A1 = 30 ppm CO (s15), A2 = 60 ppm CO (s15), A3 = 150 ppm CO (w1) for >1 min. (in accordance with PN-EN 50545-1); 15: A1 = 10 %, A2 = 20 %, A3 = 30 % LEL for propane-butane (50/50 v/v), (p2); 11: A1 = 10 %, A2 = 20 %, A3 = 30 % LEL for methane (p2); 14: A1 = 10 %, A2 = 20 %, A3 = 30 % LEL for methane (p2); 73: A1 = 10 %, A2 = 20 %, A3 = 30 % LEL for hydrogen (p2); 24: A1 = 30 ppm CO (s15) or 5 % LEL for methane (p2); A2 = 60 ppm CO (s15) or 150 ppm CO (w1) or 10 % LEL for methane (p2); A3 = 15 % LEL for methane (p2); 25: A1 = 30 ppm CO (s15) or 5 % LEL for propane-butane (50/50 v/v), (p2); A2 = 60 ppm CO (s15) or 150 ppm CO (w1) or 10 % LEL for propane-butane (50/50 v/v), (p2); A3 = 15 % LEL for propane-butane (50/50 v/v), (p2); 28: A1 = 30 ppm CO (s15) or 1,000 ppm CO ₂ , A2 = 60 ppm CO (s15) or 1,400 ppm CO ₂ , A3 = 150 ppm CO (w1) or 1,800 ppm CO ₂ ; 8R8: A1 = 1,000 ppm CO ₂ , A2 = 1,400 ppm CO ₂ , A3 = 1,800 ppm CO ₂ ; 20: A1 = 3 ppm NO ₂ (s15) or 30 ppm CO (s15), A2 = 6 ppm NO ₂ (s15) or 60 ppm CO (s15), A3 = 15 ppm NO ₂ (w1) or 150 ppm CO (w1); 0E/NO ₂ : A1 = 3 ppm NO ₂ (s15), A2 = 6 ppm NO ₂ (s15), A3 = 15 ppm NO ₂ (w1); for 15, 11, 14 – false alarm filter (for alarms shorter than 20 s); for 24, 25 – false alarm filter for explosive gas (for alarms shorter than 30 s)
Calibration conditions	20 ($-2/+5$) $^{\circ}\text{C}$, relative humidity 65(± 10) %, atmospheric pressure 1013 (± 30) hPa, minimum 72 hours of uninterrupted supply
Threshold setting accuracy	$\pm 20\%$ [$\pm 25\%$ for WG-24(-25).EG...] of the threshold value (relative error under calibration conditions)
Calibration period	< 36 months (recommended, exceedance signalled visually); optimum = 12 months or 6 months (20 and 0E/NO ₂ models)
Alarm threshold stability (relative error)	$\pm 20\%$, [$\pm 25\%$ for WG-24(-25).EG...] in the temperature range $0\text{ }^{\circ}\text{C} \div +40\text{ }^{\circ}\text{C}$ $\pm 20\%$, long-term for 1 year (semiconductor sensor), but not lower than $\pm 35\%$ over a period of 3 years
Visual signalling	LEDs: ZAS [POWER] = green; A1, A2, A3 = red; [AWR] (Failure) = yellow
Sound signalling	none
Alarm outputs	A1, A2, A3 NO; load capacity: max 2 A (resistive loads or motors) or max 0.6 A (fluorescent lamps); max 230 VAC or 1A/24V $\overline{\text{=}}$, removable terminals
Dimensions and weight	195 x 80 x 68 mm H, W, D (with glands); approx. 0.4 kg
Enclosure:	ABS/PC, IP54; 2-point mounting
Warranty (for devices manufactured after 01.01.2021.)	3 years from the end of the detector's production year (according to the nameplate) – Standard Gazex Warranty 3 years + (SGG3Y+); option to extend – Extended Gazex Warranty 5 years + (RGG5Y+), sensor module covered by the OGG+ warranty

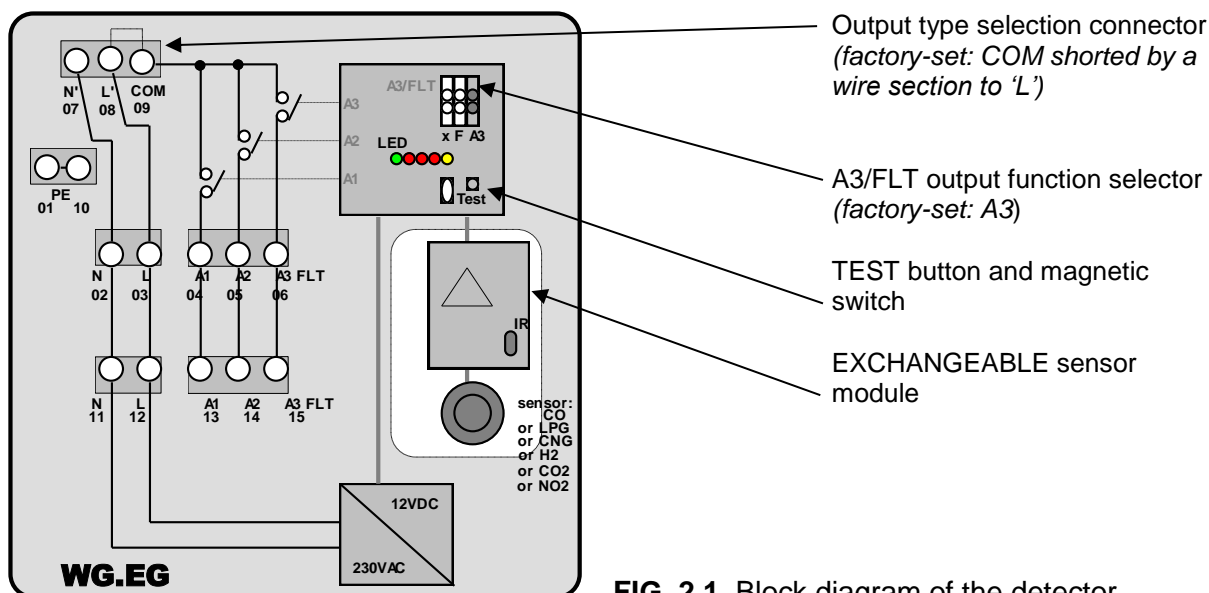


FIG. 2.1. Block diagram of the detector

3. DESCRIPTION OF THE DETECTOR

Fig. 3.1.1. View after removing the WG.EG detector cover, installation position

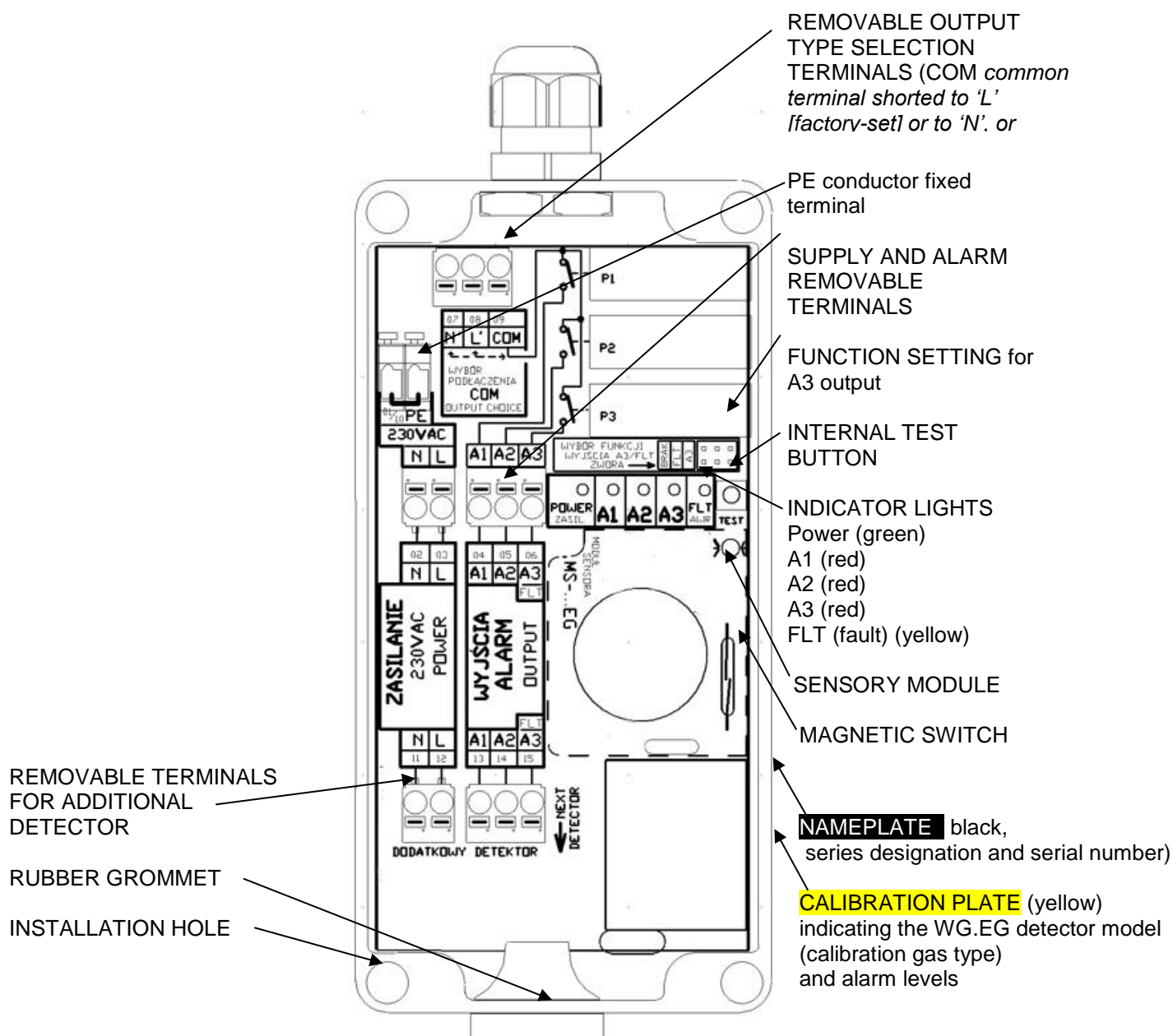





































TABLE 3.1.1 Functions of WG.EG outputs
(depending on the setting of the A3/FLT output function jumper):

STATUS	contact ALARM OUTPUTS				
	terminals A1	terminals A2	terminals A3 / FLT		
Terminal no.	09, 04 (13)	09, 05 (14)	09, 06 (15)		
Function switch position*			'A3'	'FLT'	'none'
NORMAL	COM [09] —  — A1 [04] ([13])	COM [09] —  — A1 [05] ([14])	COM [09] —  — A1 [06] ([15])	COM [09] —  — A1 [06] ([15])	COM [09] —  — A1 [06] ([15])
A1	COM [09] —  — A1 [04] ([13])	COM [09] —  — A1 [05] ([14])	COM [09] —  — A1 [06] ([15])	COM [09] —  — A1 [06] ([15])	COM [09] —  — A1 [06] ([15])
A2	COM [09] —  — A1 [04] ([13])	COM [09] —  — A1 [05] ([14])	COM [09] —  — A1 [06] ([15])	COM [09] —  — A1 [06] ([15])	COM [09] —  — A1 [06] ([15])
A3	COM [09] —  — A1 [04] ([13])	COM [09] —  — A1 [05] ([14])	COM [09] —  — A1 [06] ([15])	COM [09] —  — A1 [06] ([15])	COM [09] —  — A1 [06] ([15])
detector FAULT	COM [09] —  — A1 [04] ([13])	COM [09] —  — A1 [05] ([14])	COM [09] —  — A1 [06] ([15])	COM [09] —  — A1 [06] ([15])	COM [09] —  — A1 [06] ([15])
sensor FAULT (none)	COM [09] —  — A1 [04] ([13])	COM [09] —  — A1 [05] ([14])	COM [09] —  — A1 [06] ([15])	COM [09] —  — A1 [06] ([15])	COM [09] —  — A1 [06] ([15])
supply FAULT	COM [09] —  — A1 [04] ([13])	COM [09] —  — A1 [05] ([14])	COM [09] —  — A1 [06] ([15])	COM [09] —  — A1 [06] ([15])	COM [09] —  — A1 [06] ([15])

* - when the A3/FLT output function switch is set to one of the indicated positions:

'A3' = A3 threshold control enabled;

'FLT' = contact output for FAULT statuses;

'none' = the detector does not change the status of this output (for use when information on explosive gas leakage risk is fed from a connected secondary detector)

TABLE 3.1.2 Description of detector status signalling under non-fault status (when [FLT] light is off):

DETECTOR STATUS	Indicator POWER	Indicators A1, A2, A3
Normal status, concentration below threshold A1	Constantly on	off
Normal status, MS warm-up after power on	Flashes slowly, at a frequency of 1 Hz	
Normal status, recommendation to calibrate the sensor module after 3 years of operation	Flashes rapidly, at a frequency of 2.5 Hz	
Normal status, gas concentration above threshold A1, but exceedance time shorter than the alarm outputs activation delay	Continuously on with brief extinguishments every 2 seconds: - one extinguishment means that the following was detected: CO for WG-22 (-24, -25).EG; methane for WG-11 (-14).EG; propane-butane for WG-15.EG; - two extinguishments mean that the following was detected: methane for WG-24.EG; propane-butane for WG-25.EG; - three extinguishments mean that the following was detected: CO and methane for WG-24.EG; CO and propane-butane for WG-25.EG	
Alarm status A1, gas concentration above threshold A1	Continuously on with short extinguishments every 2 seconds (description above)	A1 indicator constantly on

Alarm status A2, gas concentration above threshold A2	Continuously on with short extinguishments every 2 seconds (description above)	A1 and A2 indicators constantly on
Alarm status A3 gas concentration above threshold A3	Continuously on with short extinguishments every 2 seconds (description above)	A1, A2 and A3 indicators constantly on

TABLE 3.1.3 Description of detector status signalling under fault status
(no alarms = indicators A1, A2, A3 off):

DETECTOR FAULT STATUS	Indicator POWER	Indicator FAULT [FLT]
No supply	off	off
Sensor module (MS) missing or sensor module fault	off	Constantly on
Sensor module fault	Flashes rapidly, at a frequency of 2.5 Hz	
Gas sensor defect	Flashes slowly, at a frequency of 1 Hz	

4. INSTALLATION CONDITIONS



The user of the detector and the INSTALLATION TECHNICIAN must be aware of the specific use of the WG.EG detector.

This necessitates carrying out all installation and maintenance work with the UTMOST CARE!

4.1. The PLACE OF INSTALLATION of the detector on premises at risk of gas emissions has a FUNDAMENTAL effect on the correct operation of the device. For this reason, the places of installation should be selected in line with the building's design or they should be determined by a competent specialist.

In many cases, it can be assumed that the best place to install the detector is (general requirements for all models):

- as close as possible to the potential source of gas emissions, no more than **8 m** away (measured on the ground) – in
practice **1 detector / ~200 m²** of the garage/parking area;
- away from ventilation inlets, windows, shutters, doors;
- in a place where the ambient air can flow freely (or close to extraction vents);
- in an area unexposed to sunlight, away from heat sources;
- in a place not exposed to mechanical damage and free from vibration, oscillation and sources of strong electromagnetic fields;
- in a place not exposed to the direct influence of: outside air, water vapour, water or other liquids, vehicle exhaust, furnace flue gases, dust.

The above-mentioned distance from the emission source refers to an unimpeded diffusion zone, i.e. a temperature-homogeneous space without mechanical barriers restricting the flow of gases, without forced air circulation (mechanical ventilation), and without gravitational ventilation. All the factors mentioned above can affect the proper operation of the detector and should be taken into account when deploying the detectors

Special requirements - models **WG-22.EG...**, **WG-28.EG...**, **WG-8R8.EG...**, **WG-20.EG...**, **WG-0E.NO2.EG...**:

since carbon monoxide is a little lighter than air and mixes easily with it (as do low-concentration CO₂ and NO₂ from warm flue gases), in many cases the best place to install the detector can be assumed to be:

- on a wall, support, pillar or extension at a height of approx. **180 ÷ 200 cm** from the ground (installation on the ceiling is not recommended – it increases the susceptibility to false alarms and reduces the service life of the sensor).

Special requirements – model **WG-15.EG...**:

since propane-butane (LPG) is considerably heavier than air, in the vast majority of cases it can be assumed that the best place to install the detector is:

- on a wall, support or pillar at a height of approx. **15 ÷ 30 cm** above the ground,
- not over depressions in the ground (not over drainage grids).

In areas exposed to mechanical damage from shopping trolleys or car bumpers, it is recommended to install the detector in an additional (optional) type AR-1 steel tube cover.

Special requirements – models **WG-11.EG...** or **WG-14.EG...** or **WG-73.EG...**:

since methane (the main constituent of natural gas, CNG, LNG) and hydrogen are considerably lighter than air, in many cases it can be assumed that the best place to install the detector is:

- on a wall, support, pillar or extension at a height **not lower than 30 cm** from the ceiling level, or on the ceiling itself.

Special requirements – two-gas models **WG-25.EG...**:

since propane-butane (LPG) is considerably heavier than air and at the same time carbon monoxide mixes very easily with air, in the vast majority of cases it can be assumed that the best place to install the detector is:

- on a wall, support or pillar at a height of approx. **30 ÷ 50 cm above the ground**,
- not over depressions in the ground (not over drainage grids).

In areas exposed to mechanical damage from shopping trolleys or car bumpers, it is recommended to install the detector in an additional (optional) type AR-1 steel tube cover.

Special requirements – two-gas models **WG-24.EG...**:

since methane (the main constituent of natural gas, CNG, LNG) is considerably lighter than air and at the same time carbon monoxide mixes very easily with air, in many cases it can be assumed that the best place to install the detector is:

- on a wall, support, pillar or extension at a height of approx. **20 ÷ 30 cm** from the ground (installation on the ceiling is not recommended – it increases the susceptibility to false alarms and reduces the service life of the sensor).

4.2. INSTALLATION POSITION:

recommended – VERTICAL, rubber grommet (gland) on top, as in Fig. 3.1.1. –

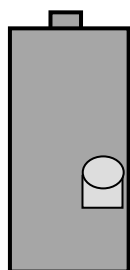
with any deviation from the vertical axis not exceeding 45°,

acceptable – horizontal (less resistant to splashes and dust).

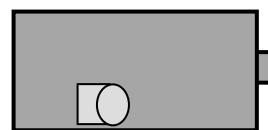
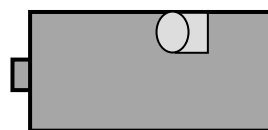
Installation of WG-22(-24).EG... on the ceiling is not recommended – it increases the probability of false alarms and reduces the service life of the sensor.

Position with rubber grommet facing upwards – not permitted.

INSTALLATION POSITIONS:



RECOMMENDED – vertical

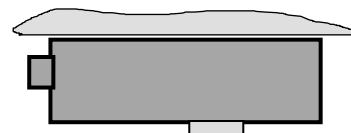
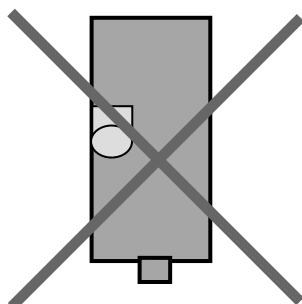


NOT RECOMMENDED (but acceptable) – horizontal

(possible deviation
from the vertical axis $\pm 45^\circ$)

(may not meet the splashing and dust resistance requirement!)

**POSITION
NOT PERMITTED:**



**Installation on the ceiling: WG-15(-25).EG... not permitted
WG-22(-24).EG... not recommended
WG-11(-14,-73).EG... acceptable**

5. WG.EG INSTALLATION



Installation and start-up of the WG.EG detectors and signalling devices supplied with 230VAC may only be performed by competent personnel with proven qualifications for the operation of electrical equipment supplied with hazardous voltage !



BEFORE installation, it is important to be sure that the detector is accompanied by an individual detector **short calibration certificate (SSW)** – the detector serial number listed in this document must match the wording on the nameplate (while the sensor serial number in the SSW refers to the sensor module – marked with a white label – with a barcode on the sensor module plate). The SSW document must be kept and it is essential to pass it on to the user, as it forms the basis for dealing with any warranty claims.

5.1. Remove the detector cover. Once it is removed, all operations should be carried out when the power supply is off. Do not remove or move the sensor module.

5.1.1. Connection WIRES:

Typical single or multi-stranded electrical conductors can be used. The detector is equipped with spring-loaded terminals, which are resistant to vibration and aging of the contact material, ensuring reliable terminal connections. The way the wires should be connected to the terminals is shown in Fig. 5.1.1.A

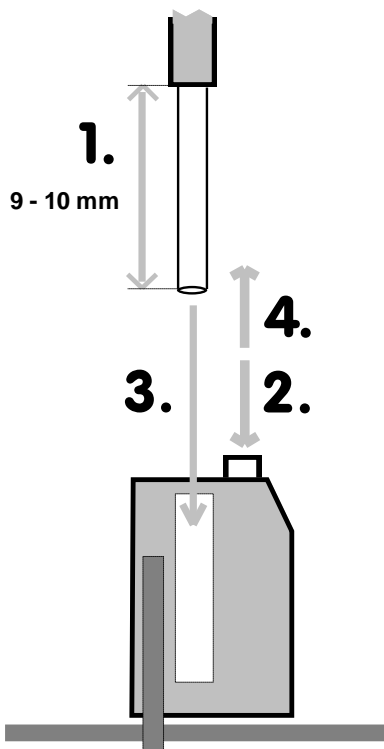


Fig. 5.1.1.A Inserting a conductor into a **self-clamping removable** (straight) type terminal:

1. Remove conductor insulation over a section of 9 to 10 mm (precisely!) [1.];
2. for multi-stranded wires (stranded cable) – twist the wires on the end slightly, press the orange lock button [2.], push the wire into the opening of the terminal up to the stop [3.], release the button [4.];
3. for single-strand wires, use pliers or manually push the stripped conductor end into the round opening of the terminal up to the stop [3.]. For the convenience of the installation technician, the single-wire conductors can be connected in the terminals removed from the terminal strip.

A properly inserted conductor cannot be dislodged from the terminal.

The conductor can be released and removed by pressing the orange button. [2.].

The two- and three-wire connection terminals are easily removable from the connection pins – the different detector circuits can be easily and quickly disconnected. When sliding the terminals back onto the pins, follow the correct sequence (2-wire terminals to double pins and 3-wire terminals to triple pins).

PE conductor terminals are fitted with a white lever to expose the terminal opening (pressing it with a screwdriver is necessary both when inserting and removing the conductor from the terminal) – it is necessary to strip the insulation of the conductor over a section of 5–8 mm. Both PE terminals (No. 01 and No. 10) are connected internally and are NOT removable!



PLEASE NOTE: before switching on the power supply, ALL terminals must be placed on the correct pins – only this position ensures insulation clearances to protect the installation technician from accidental electric shock !!!



5.1.2. The cable ends should be prepared in such a way that, when inserted into the terminal opening, the conductors attached to the terminals would not have to be curled up inside the detector (due to the different lengths of the functional and PE conductors) and that the gland seal would enclose the outer insulation of the cable and the stripped parts of the conductors would be completely hidden in the terminals (to reduce the risk of electric shock).



5.1.3. Clip the upper supply and control cable in the gland.

IMPORTANT INFORMATION: The cable should be clamped firmly enough in the gland so that the cable does not slip out of the detector when attempting to pull it out by hand (and does not transmit mechanical forces to the detector connection terminals). In this way, the detector will be properly sealed.



5.1.4 Connect an additional detector, if any (usually an LPG detector, installed below the primary detector in the same place) to the lower terminal row (Nos. 11 ÷ 15, described as 'Additional detector').

To feed in the lower supply and control cable, pierce the rubber diaphragm of the lower gland centrally (from below) with a thin screwdriver. Insert the cable, with rubber insulation removed, slowly, from the bottom (the length of the split wires should be sufficient to connect the PE conductor laid on the left side next to the sensor module). The insertion depth should be selected so that the full insulation of the cable protrudes beyond the rubber gland diaphragm by 5 ÷ 10 mm. Only at this point the end of the PE conductor should be stripped of its insulation and inserted into the appropriate terminal; the remaining conductors of the function wires should be shortened and inserted into the appropriate terminals.

Wiring diagrams recommended for the suitable configurations of the garage exhaust control system are shown in Figures 5.1.A–G below.

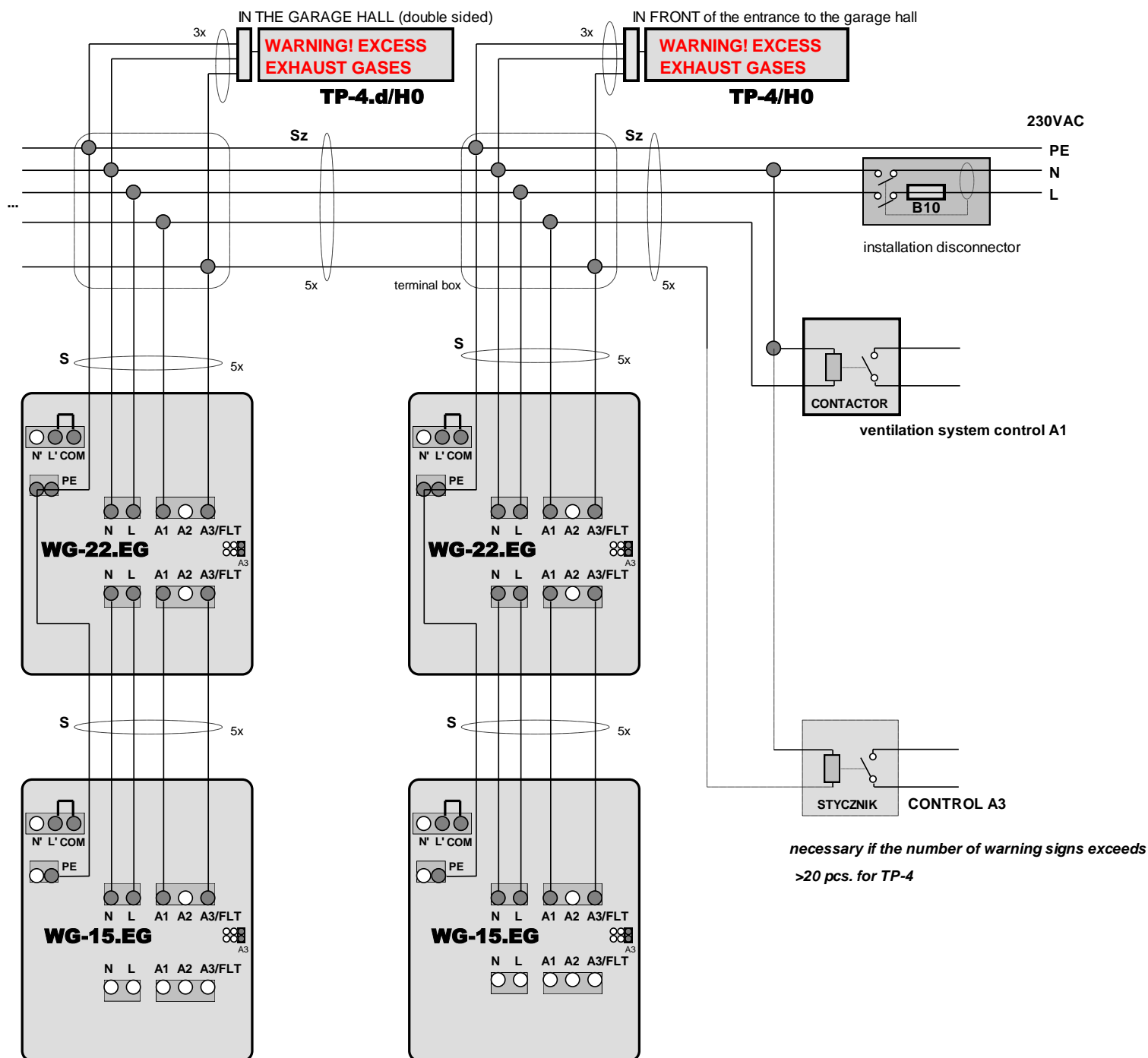


Fig.5.1.A 2-threshold system, **OPTIMISED economically**, control wires short-circuited to the phase wire in the alarm status (no voltage during normal status), *common COM terminal short-circuited to 'L' [factory-set];* A1 = switching on/intensifying ventilation, A3 = activation of warning signs.



ATTENTION, VERY IMPORTANT INFORMATION!!!

Before powering up the detection system, it is essential to ensure that the configuration of the output selection control terminals (terminals No. 07, 08, 09) **IS CORRECT**, as shown in the figure above. In the event of an incorrect configuration (which usually consists of not having the output type selection jumper set in the same way on the detectors), when connecting the power supply or during a test or alarm status, the control wires in the system can short circuit = this can lead to irreparable damage to the internal circuitry of the WG.EG !

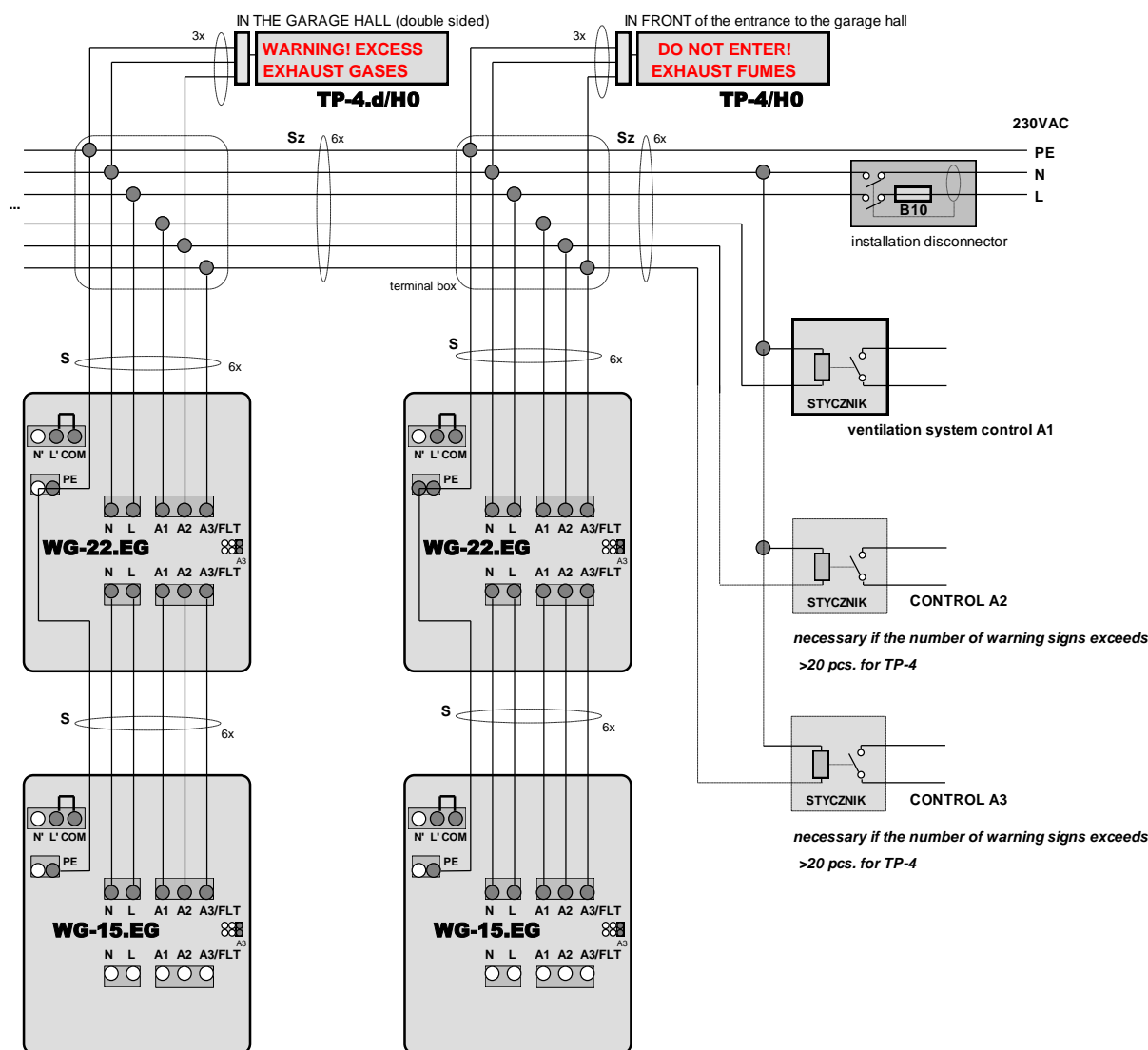


Fig.5.1.B 3-threshold system, **OPTIMISED functionally**, control wires short-circuited to the phase wire in the alarm status (no voltage during normal status), *common COM terminal short-circuited to 'L' [factory-set];*
A1 = switching on/intensifying ventilation,
A2 = activation of warning signs on the garage premises.
A3 = activation of warning signs in front of garage entrances



ATTENTION, VERY IMPORTANT INFORMATION!!!

Before powering up the detection system, it is essential to ensure that the configuration of the output selection control terminals (terminals No. 07, 08, 09) **IS CORRECT**, as shown in the figure above. In the event of an incorrect configuration (which usually consists of not having the output type selection jumper set in the same way on the detectors), when connecting the power supply or during a test or alarm status, the control wires in the system can short circuit = this can lead to irreparable damage to the internal circuitry of the WG.EG !

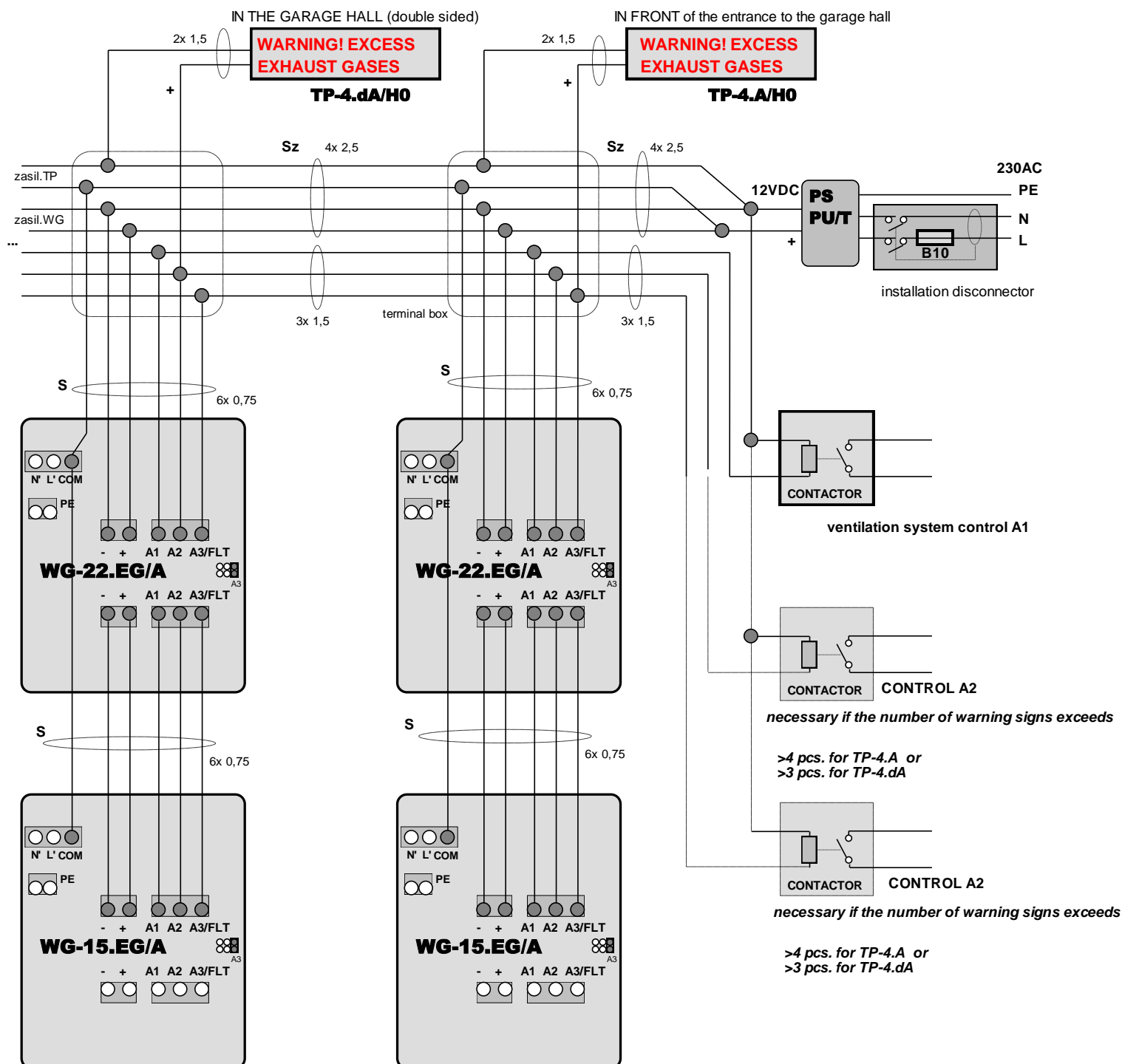


Fig.5.1.C 3-threshold system, 12 V_{DC} power supply, control wires separated from power supply wires (*more balanced current load*); *similar scheme for system with 24 V power supply_{DC}*;
A1 = switching on/intensifying ventilation,
A2 = activation of warning signs on the garage premises.
A3 = activation of warning signs in front of garage entrances



ATTENTION, VERY IMPORTANT INFORMATION!!!

Before powering up the detection system, it is essential to ensure that the configuration of the output selection control terminals (terminals No. 07, 08, 09) **IS CORRECT**, as shown in the figure above. In the event of an incorrect configuration (which usually consists of not having the output type selection jumper set in the same way on the detectors), when connecting the power supply or during a test or alarm status, the control wires in the system can short circuit = this can lead to irreparable damage to the internal circuitry of the WG.EG !

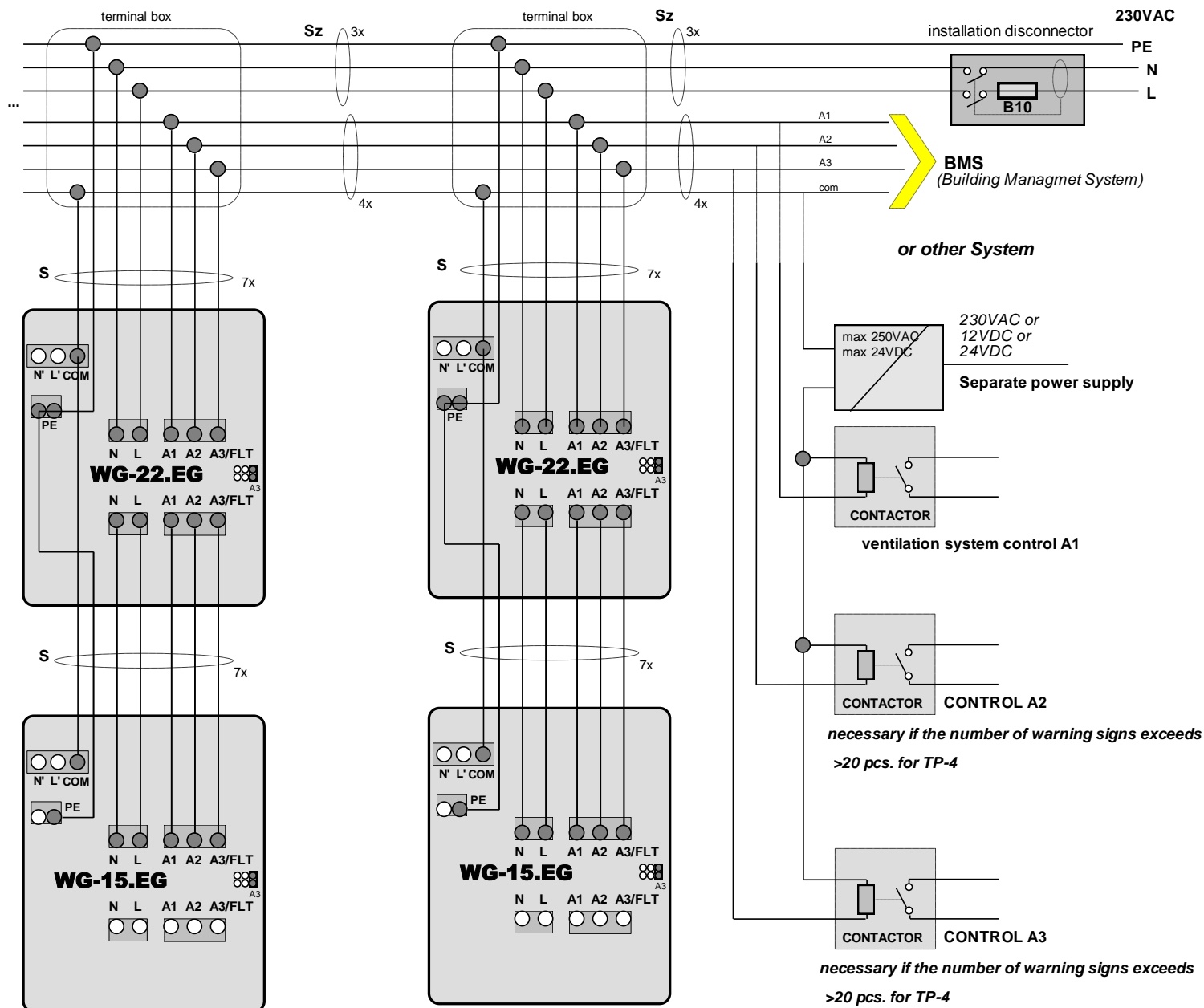


Fig.5.1.D 3-threshold system (or 2-threshold with fault status indication), control circuits SEPARATED from the power supply – can be combined with BMS or other ventilation control systems – *common COM terminal separated (factory-set jumper removed)*



ATTENTION, VERY IMPORTANT INFORMATION!!!

Before powering up the detection system, it is essential to ensure that the configuration of the output selection control terminals (terminals Nos. 07, 08, 09) **IS CORRECT**, as shown in the figure above. In the event of an incorrect configuration (which usually consists of not having the output type selection jumper set in the same way on the detectors), when connecting the power supply or during a test or alarm status, the control wires in the system can short circuit = this can lead to irreparable damage to the internal circuitry of the WG.EG!

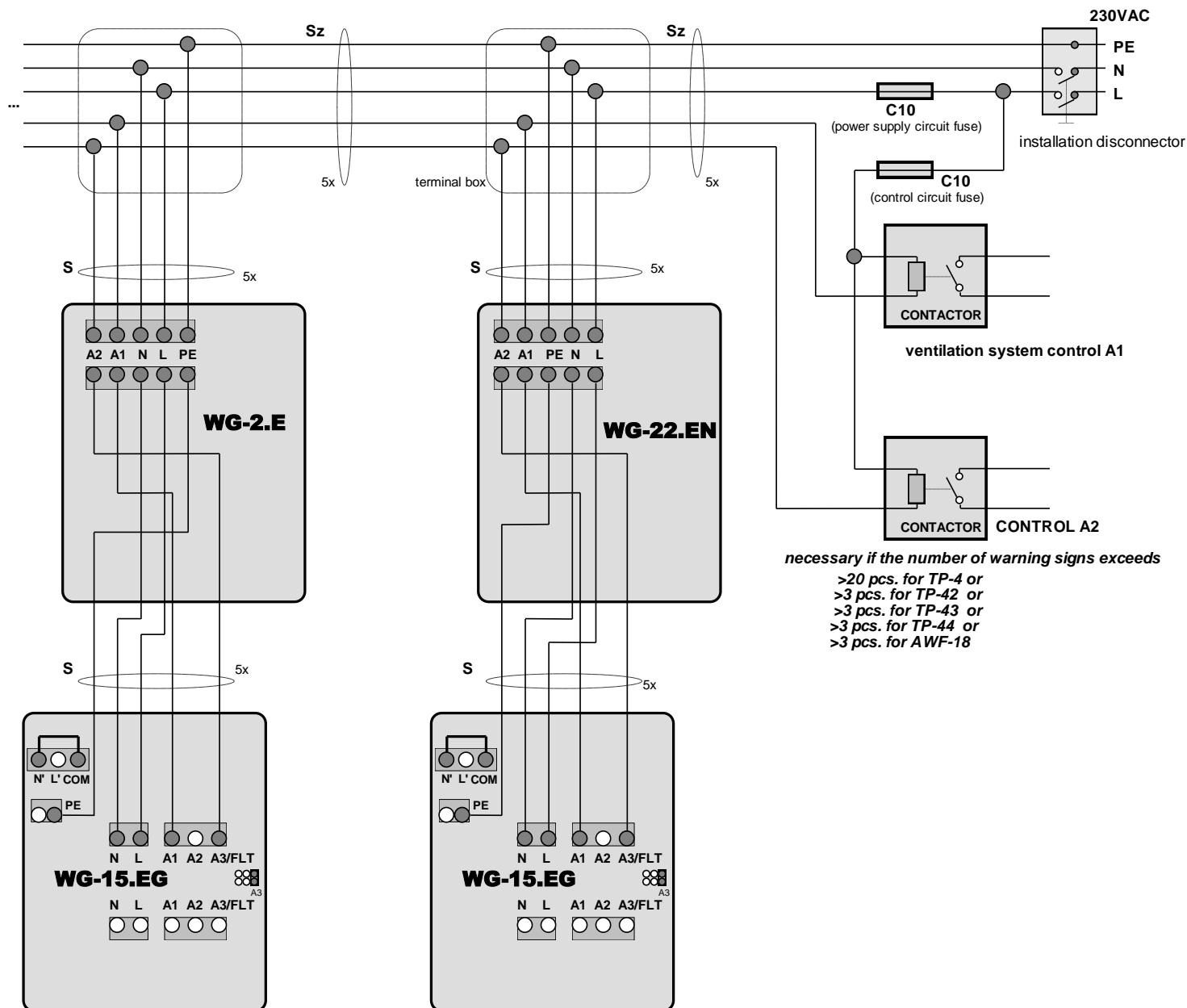


Fig.5.1.E 2-threshold system, control wires short-circuited in alarm status to the neutral wire (live during normal status) – *compatible with previous versions: WG-22.EN, WG-2.E;*
common COM terminal shorted to 'N';
 A1 = switching on/intensifying ventilation,
 A2 (CO) = A3(LPG) = activation of warning signs



ATTENTION, VERY IMPORTANT INFORMATION!!!

Before powering up the detection system, it is essential to ensure that the configuration of the output selection control terminals (terminals Nos. 07, 08, 09) **IS CORRECT**, as shown in the figure above. In the event of an incorrect configuration (which usually consists of not having the output type selection jumper set in the same way on the detectors), when connecting the power supply or during a test or alarm status, the control wires in the system can short circuit = this can lead to irreparable damage to the internal circuitry of the WG.EG!

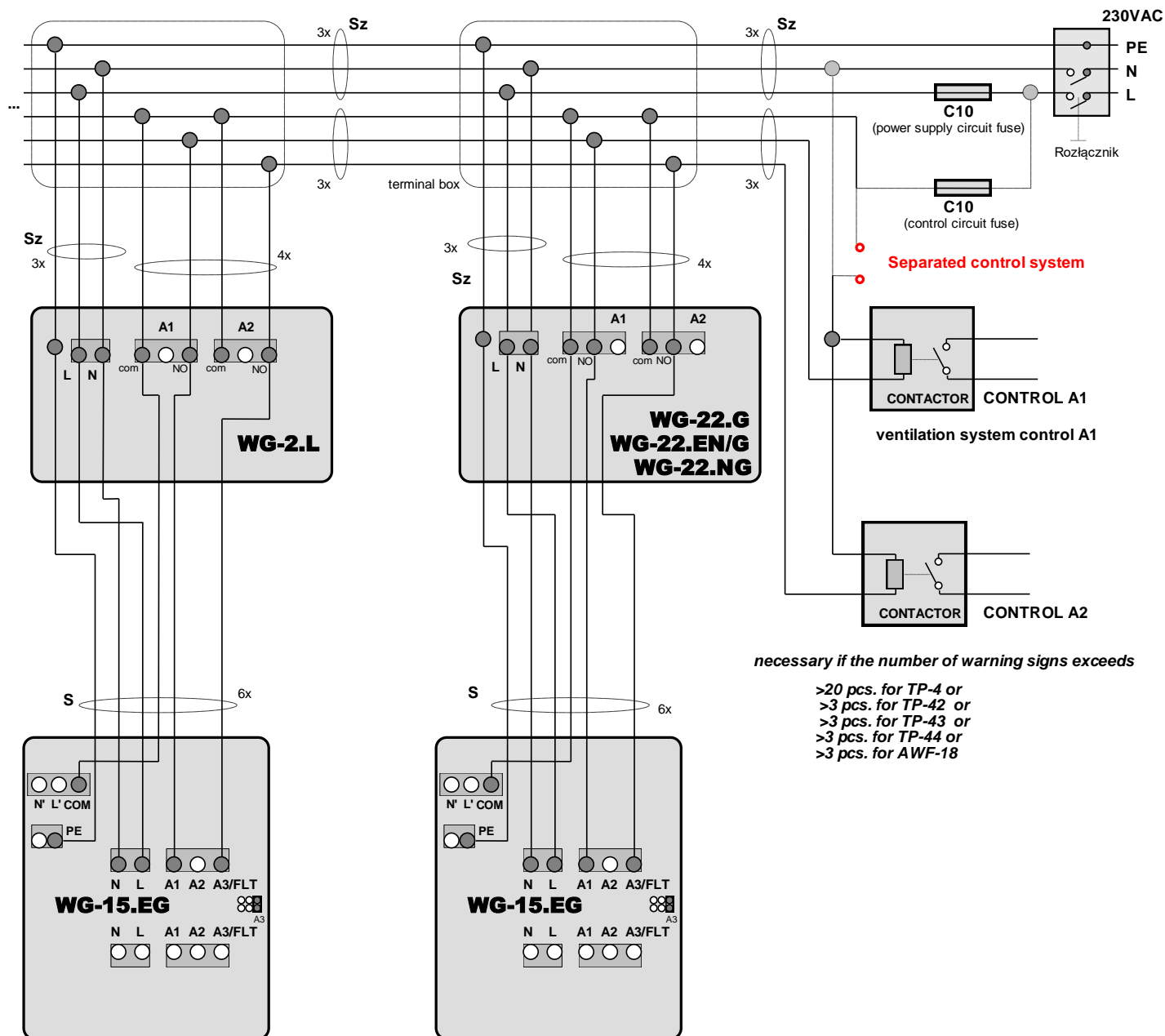


Fig.5.1.F Supplement/extension of the 2-threshold ventilation control system in garages with older type detectors, e.g. WG-2.L or WG-22.G – *common COM terminal separated (factory-set jumper removed)*
A1 = switching on/intensifying ventilation,
A2 (CO) = A3(LPG) = activation of warning signs



ATTENTION, VERY IMPORTANT INFORMATION!!!

Before powering up the detection system, it is essential to ensure that the configuration of the output selection control terminals (terminals Nos. 07, 08, 09) **IS CORRECT**, as shown in the figure above. In the event of an incorrect configuration (which usually consists of not having the output type selection jumper set in the same way on the detectors), when connecting the power supply or during a test or alarm status, the control wires in the system can short circuit = this can lead to irreparable damage to the internal circuitry of the WG.EG!

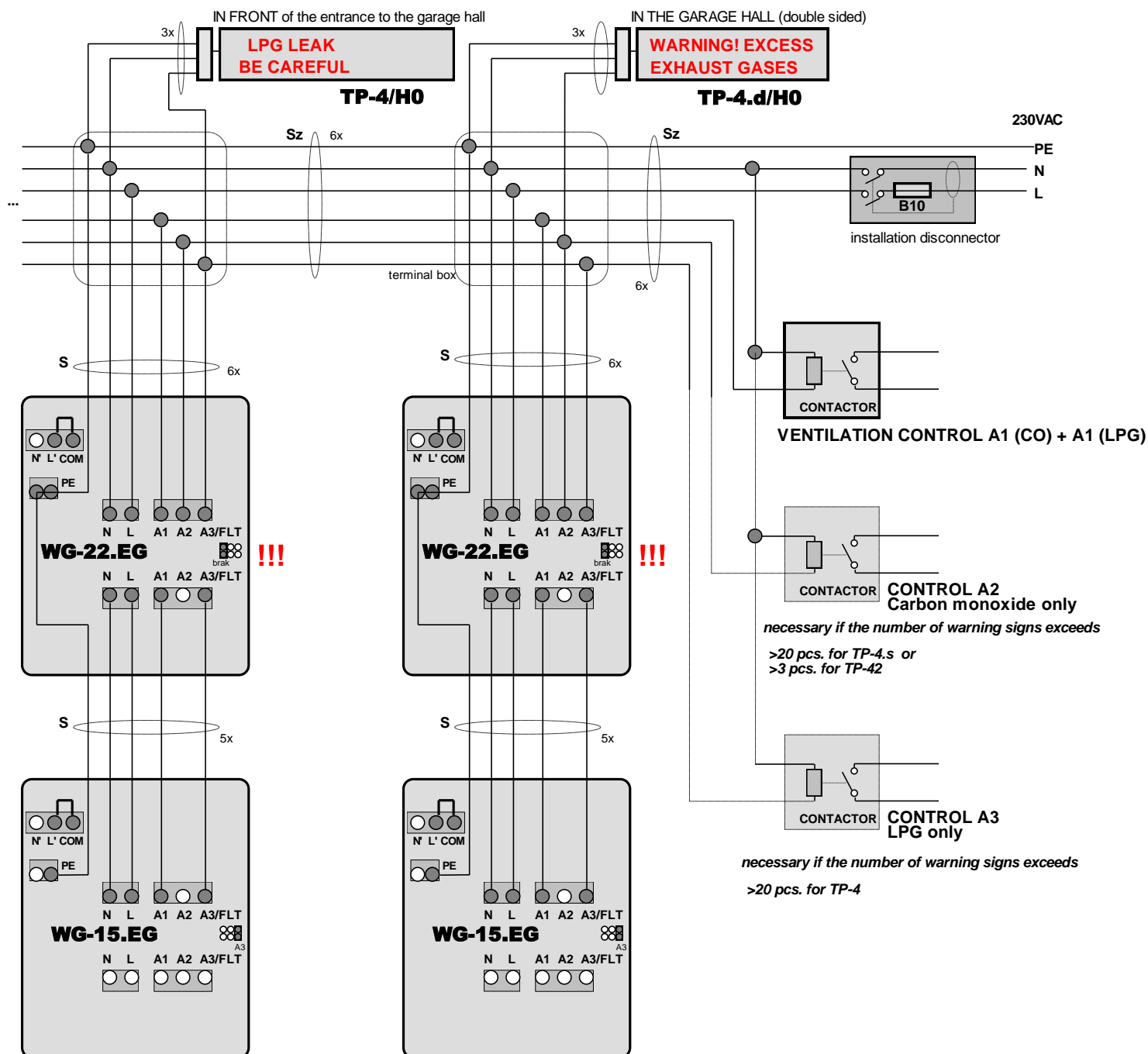


Fig.5.1.G 2-threshold system, SEPARATED exhaust gas (carbon monoxide) and autogas (LPG) leakage signals, *common COM terminal shorted to 'L' [factory-set];*

A1 = switching on/intensifying ventilation,
A2 = activation of CO warning signs on the garage premises,
A3 = activation of LPG warning signs in front of garage entrances



ATTENTION, VERY IMPORTANT INFORMATION!!!

Before powering up the detection system, it is essential to ensure that the configuration of the output selection control terminals (terminals Nos. 07, 08, 09) **IS CORRECT**, as shown in the figure above. In the event of an incorrect configuration (which usually consists of not having the output type selection jumper set in the same way on the detectors), when connecting the power supply or during a test or alarm status, the control wires in the system can short circuit = this can lead to irreparable damage to the internal circuitry of the WG.EG!

5.2. The detector should be installed so that there is free airflow around it.

5.2.1. It is important to ensure that the detector is not exposed to mechanical damage/shocks or flooding by water or other agents.



DAMAGE of the detector by water or other liquids causes irreversible DESTRUCTION of the gas sensor! In such a case, sensor replacement is **NOT** covered by the warranty!!!

In addition, an electric shock hazard arises!

Strong mechanical shocks or vibration can lead to irreversible changes in the sensor and thus in the measurement parameters of the detector. Also in this case, sensor replacement/calibration is **NOT** covered by the warranty!

When installing in areas exposed to mechanical damage, it is recommended to use an additional cover made of GAZEX type AR-1 profiled tubes, or a similar cover.

5.3. Where cables are routed through areas accessible to members of the public (especially in the case of LPG detectors), plastic conduits are recommended. This will protect the system from accidental or intentional damage.

ATTENTION, VERY IMPORTANT INFORMATION!!!

Before powering up the detection system, it is essential to ensure that the configuration of the output selection control terminals (terminals Nos. 07, 08, 09) **IS CORRECT**. In the event of an incorrect configuration (which usually consists of not having the output type selection jumper set in the same way on the detectors), when connecting the power supply or during a test or alarm status, the control wires in the system can short circuit = this can lead to irreparable damage to the internal circuitry of the WG.EG!

5.3.1. The detector cover should be fastened so that the ventilation cap of the cover is above the sensor.

5.4. Connect the 230 VAC power supply to WG.EG (or 12/24 VDC to WG.EG/A...). Connect the phase conductor to the terminal marked 'L', the neutral conductor to the 'N' terminal, and the protective conductor to the PE terminal (No. [01/10]). Keep the correct polarity when supplying DC voltage (the device is protected against reverse polarity).



PLEASE NOTE: The detector is not equipped with a power switch. The power supply should be connected via a suitable installation disconnecter which cuts both power supply wires.

It is essential to protect the WG.EG alarm power and control circuits with separate overcurrent fuses!!!



PLEASE NOTE: when the 230 VAC voltage is applied in the external power circuits of the gas detection system or in the control circuits of the ventilation system – **disconnecting (removing) the detector's terminal blocks exposes access to the connection pins, which may be under 230 VAC voltage!!!**

Any changes to the detector's connections can only be made after the dangerous voltages in the power and control circuits have been cut off!!!



5.4.1. In a correctly powered detector, the POWER indicator flashes (1 Hz) for approx. 1 minute after the supply voltage is applied (sensor warm-up). The status of the outputs remains normal. After the warm-up period, in the normal status the green indicator light is on continuously, and the other indicators should be off (as long as the gas concentration in the room to be monitored does not exceed the threshold values A1/A2/A3 !)

5.4.2. To verify that the control circuitry is correctly connected, the output test procedure generated by the detector can be used when the 'TEST' button is pressed or when a strong permanent magnet is applied to the area around the magnet symbol (field marked 'TEST ZONE') on the WG.EG detector nameplate. Any strongly magnetised object, e.g. the interchangeable tip of an electric screwdriver or the magnetised end of a manual screwdriver, can be used to activate the magnetic test switch. A small, dedicated, powerful permanent magnet is also available from the detector's manufacturer (at the GAZEX headquarters or by post after e-mail request).

Magnetic sensitivity field of the test switch



To start the output test procedure, press the internal 'TEST' button or activate the magnetic switch from outside. If the button is correctly pressed and held or the magnet is correctly applied, the green POWER indicator will flash (approx. 1 Hz) while the other indicators are off. After 8 sec., the detector signals the possibility of activating the output test mode – fast flashing of the POWER indicator – lasting 2 sec. If the button is released during these 2 sec. or the magnet is moved away, it triggers the test procedure on the outputs. If the button/magnet is held down for a longer period of time (exceeding the period of the fast flashing of the indicator lamp), the test procedure will be cancelled (the flashing of the green indicator stops and the light becomes continuous when the button is released). This prevents accidental, unintentional generation of the test procedure. The initiated outputs test procedure (signalled by short flashes of the green POWER indicator) covers the generation of the following output statuses in sequence: A3 → A2 → A1 → Detector fault → Normal → return to normal operation (green POWER indicator on permanently). Each status lasts for 10 s, allowing for verification of the connection of the outputs and the operation of the controlled devices during this time.

5.5. The final stage of the installation consists in a final check of the **WG.EG** operation:

5.5.1. Ensure that the detector is properly powered for **at least 15 minutes**. During this time, when the power is supplied, the sensor of the detector may show much lower sensitivity and its metrological performance is limited. It is necessary to wait for this time before carrying out any gas tests!

5.5.2. SIMPLIFIED TEST (recommended):

Test of the sensor's physical response to the test gas.

Through the appropriate test cap (TC2-WG), supply – at a flow rate of approximately 0.5 l/min (or under other conditions as specified in the detector's SSW calibration certificate) – a test gas containing:

- for WG-22(-24,-25).EG... – carbon monoxide concentrations greater than >50 ppm (but <1,000 ppm), for at least 30 sec. (but no more than 1 minute);

- for WG-15(-25).EG... a propane-butane mixture of > 20% LEL i.e. >0.3% by volume, for at least 30 sec. (but no more than 1 minute);

- for WG-11(-14,-24).EG... methane of >20% LEL i.e. >0.88% by volume, for at least 30 sec. (but no more than 1 minute).

The green POWER indicator periodically turns off every approximately 2 seconds (even when the alarm indicators are off) indicate gas detection by the detector sensor = which indicates **its correct operation**. The different A1/A2/A3 alarm indicators are illuminated depending on the concentration of the test gas and the time the gas is supplied to the sensor.

5.5.3. EXTENDED TEST:

5.5.3.A. For WG-22(-24,-25).EG carbon monoxide detectors – switch on the CO **sensor's TEST MODE**, which sets the detector to react to instantaneous gas concentrations (the procedure calculating average concentrations for a specified time is deactivated) – which, with the use of appropriate gas mixtures, enables quick verification of the detector's threshold concentration values (significantly reduces the necessary time of gas mixture supply).

To start the **sensor measurement test mode**, press the internal 'TEST' button or activate the magnetic switch from outside. If the button is correctly pressed and held or the magnet is correctly applied, the green POWER indicator will flash (approx. 1 Hz) while the other indicators are off. After 8 sec. the detector signals the possibility of enabling the **outputs test mode** – fast flashing of the POWER indicator – lasting approx. 2 sec. It is necessary to keep the button pressed or the magnetic switch activated – for another 5 sec., until the device signals the possibility of enabling the sensor test mode –fast flashing of the POWER indicator lamp – lasting 2 sec. When during the second 'fast flashing' period the TEST button is released (or the magnet is moved away from the nameplate), the **sensor measurement test mode** will be activated. If the button/magnet is held down for a longer period of time (exceeding the period of 'fast flashing'), the test procedures will be cancelled (the flashing of the green indicator stops and the light becomes continuous when the button is released). This prevents accidental, unintentional generation of the test procedure.

The initiated test procedure is signalled by short flashes of the green POWER indicator. When supplying suitable test gas mixtures, it is possible to verify the threshold concentrations at which the detector reacts. Resumption of normal operation (permanent illumination of the green POWER indicator light) occurs automatically, 15 minutes after the sensor has entered the test mode. Resumption of normal operation (with active counting of average values) can be accelerated at any time by repeating the procedure for entering the sensor measurement test mode.

Pressing the **TEST** button and releasing it after time **t_{on}** triggers the selected function:

Function	normal mode	Triggering of the OUTPUTS TEST	normal mode	ENABLING/Disabling of the Measurement TEST MODE	normal mode
Green indicator PWR	flashes slowly	flashes quickly	flashes slowly	flashes quickly	flashes slowly
Time after pressing ton [s]	0.1 ÷ 8	8 ÷ 10	10 ÷ 15	15 ÷ 17	>17

Indicator flashing rate:

- slow – frequency 1 Hz (the indicator flashes every 1 s);
fast – frequency 2.5 Hz (the indicator state changes every 0.2 s);

For the other WG.EG detector models [i.e. WG-11 (14, 15, 73, 8R8, 28, 0E/N2O).EG...], the possibility of activating the sensor test mode is disabled – it is unnecessary due to the lack of procedures for averaging the concentration measurement result over time.

5.5.3.B. Generate detector alarm statuses.

Through the appropriate test cap, supply – at a flow rate of approximately 0.5 l/min (or under other conditions as specified in the detector's SSW calibration certificate) – a test gas containing:

- for WG-22(-24,-25,-20).EG... carbon monoxide with a concentration of not less than 100 ppm (but no more than 1,000 ppm);
- for WG-15(-25).EG... propane with a concentration of more than 20% LEL, i.e. >0.3% by volume (but no more than 0.85% by volume);
- for WG-11(-14,-24).EG... methane with a concentration of more than 20% LEL, i.e. >0.88% by volume (but no more than 2.2% by volume).



The test gas should be supplied for a minimum of 30 s, until an alarm status corresponding to the alarm threshold set to a value lower than the test gas concentration is generated. If the status is generated before 2 minutes have elapsed – the detector's response can be considered correct.

Following a positive test result,
the **WG.EG detector** can be considered operational and started up.

The detector reaches its full measurement performance after at least 72h of uninterrupted power supply.

The start-up should be recorded in the Periodic Inspection Record. For devices working independently, complete the individual report attached at the end of this user manual. When combining devices into a system – complete one report for the entire system.

Should you be unsure or have any doubts regarding the installation and operation of the DETECTOR, please contact your Authorised Distributor or the MANUFACTURER.

6. MAINTENANCE / OPERATION

6.1. Due to the long-term durability of the WG.EG's semiconductor detector components (including the sensor), maintenance is limited to:

- A)** – periodic inspection of the permeability of the sensor cover on the faceplate by vacuuming;
- B)** – periodic check of the operation of the system in accordance with procedure 5.5. in the 'Installation' Chapter.

The recommended frequency of periodic inspection is not less than every 3 months.

C) – the periodic check should also be conducted EVERY TIME after specific operating conditions of the detector have occurred, i.e:

- 1) the occurrence of extreme conditions, e.g. high gas concentration, high or very low temperature (outside the recommended operating range), high periodic dustiness,
- 2) the occurrence of high concentrations of gases or vapours of liquids whose presence in the controlled area was not anticipated,
- 3) long-term (>8h) operation with the alarm status activated,
- 4) after a power outage of more than 3 days,
- 5) after renovation or installation work that may affect the operation of the detector/system or its configuration; etc.

After specific operating conditions of the WG.EG have occurred as described in points 1 ÷ 3, it may be necessary to calibrate the detector (correct the setting of its alarm levels).

The above-mentioned frequency of System inspections can be considered to be in line with good engineering practice, based on over 30 years of experience of the Manufacturer. However, it should be emphasised that in the specific conditions of a given Customer, this frequency may be subject to modification, based on the principle that the more important (from the Customer's/User's point of view) the system is, i.e. the more the Customer cares about efficient, failure-free operation of the facility of which the system is a part, the more frequently the system should be inspected. When expecting to increase the level of operational safety of their facility, the Customer should inspect the detection system more frequently, e.g. every 4 weeks or prior to each important event/measurement. On the other hand, where the role of the detection system is considered to be less important or based on the Customer's own assessment of the reliability of the facility's components, the Customer/User may decide to extend the inspection period e.g. to 6 months.

THE INSPECTION INTERVAL MUST NOT EXCEED 12 MONTHS!

PLEASE NOTE: ALL results of the periodic inspection, any malfunctions noticed in the detector, power interruptions and the fact of operation under extreme conditions must be recorded in the attached **Periodic Inspection Record** (also downloadable from www.gazex.pl) on pain of losing warranty rights;

D) – as the semi-conductor gas sensor may have a natural tendency for increased sensitivity over time, an excessive lowering of the alarm thresholds may occur after a period of approximately 3 years of operation (see Technical Parameters – Long-term stability). This does not change the operation of the detector, but in such situation, it is nevertheless **recommended** (especially if the User notices frequent reactions of the system to relatively low gas concentrations) to calibrate the device, i.e. adjust the setting of the alarm levels,

at least every 3 years of detector operation.



The expiry of this recommended period of time is signalled in the detector only visually (while maintaining full functionality at the outputs): the POWER indicator flashes rapidly (several times per second). Calibration can be carried out by the Manufacturer or an Authorised Service Centre on site or after the sensor module has been delivered to the above-mentioned entities. Dismantling of the sensor module by the User and sending it back to the Manufacturer for calibration seems to be the fastest and the most economically justified way of maintaining full functionality of the device.

E) – in the event of renovation work, painting, floor impregnation, etc., it is essential to switch off the power supply to all detectors for the duration of the work and for the time required for the paint coating to dry completely and for the premises to be ventilated. It is also necessary to gas-proof the detector with a polythene bag (and remove the bag before switching the power back on).



6.2. SENSOR REPLACEMENT.

Removal of the sensor module:

- disconnect the power supply,
- remove the enclosure cover,
- gently pull out the sensor board from the socket with fingers,
- transport/store the module in a sealed plastic bag, in shock-proof packaging (wrapped in soft foam, sponge).

It is acceptable to connect the power supply to a detector without a sensor module – the detector will signal the absence of a sensor by the constant lighting of the yellow fault status (FLT) indicator only.



PLEASE NOTE: if a further/additional detector is connected to the detector in question, e.g. WG-15.EG, it is necessary to attach the detector cover and restore power supply in order to maintain proper operation of the system!

PLEASE NOTE: if the detector is operated without a sensor module (even with the cover fastened correctly), the protection rating of the WG.EG detector enclosure is limited to **IP43!!!** This means that the enclosure is not splash-proof and is not protected against the intrusion of dust!!! Such a condition should be avoided or reduced to the necessary minimum.



Mounting the sensor module:

- make sure that the power supply is disconnected,
- remove the enclosure cover,
- grip the grey sensor enclosure with fingers so that the connector pins are vertical and the positioning hole is in the upper right position,
- gently insert the module along the inner side wall of the detector housing (so that the positioning hole of the sensor module is on the positioning pin,
- press lightly until tangible resistance,
- install the enclosure lid so that the sensor inlet surface (grey-white porous 'fabric') is under the foam seal of the cover ventilation opening.

Once the power is switched on, only the green indicator should flash for about 60 sec. and then be on continuously.



PLEASE NOTE: for periodic calibration, inspection or complaint regarding the sensor

**DO NOT remove and return the entire detector –
and ONLY THE SENSOR MODULE !!!**

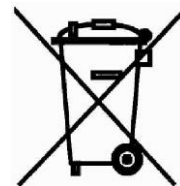
6.3. PLEASE NOTE:

Due to the continuous improvement of our products and our desire to provide the most complete, detailed information possible on them and to provide the know-how necessary for the correct, long-term operation of our products based on our customers' experiences to date, GAZEX reserves the right to make minor changes to the technical specifications of the products supplied, while such changes and not included in this User Manual, and to modify the latter. For this reason, please verify and confirm with the Manufacturer that your User Manual is up to date (please state the exact type/design and model of the device in use and the manual edition number – from the footer of the document).

6.4. STORAGE OF THE DETECTOR

Detectors with semiconductor sensors should be stored in a place free of moisture, dust, exhaust fumes, free of any chemically active substances (especially those containing silicones and derivatives), in a sealed polythene bag. Storage temperature: -20°C to +50°C. Always store the detector with the SSW calibration certificate attached. After a period of 36 months from the production date, the device must be recalibrated.

6.5. According to the WEEE Directive 2012/19/EU on electrical and electronic equipment waste, a used unit cannot be placed together with other household waste. It must be handed over to a specialist collection point. This is why it is marked with a special symbol:
Correct disposal protects against the negative impact of waste on human health and the natural environment.



7. WARRANTY TERMS AND CONDITIONS

The detector is covered by the Standard Gazex 3-year warranty plus (SGG3Y+) for a period of 36 **MONTHS** – as of the end of the year in which the device was manufactured, according to the terms and conditions of that warranty posted on www.gazex.pl.

The manufacturer does NOT print or issue warranty cards = the basis for determining the warranty period is the year of manufacture shown on the device's nameplate.

The device is covered by the Gazex Standard Warranty 3 years plus (SGG3Y+) according to the terms and conditions of SGG3Y+ available at www.gazex.pl. Selected extracts from the SGG3Y+ terms and conditions:

- ...
1. GAZEX guarantees the efficient operation of devices of its own manufacture for the period up to the end of the year in which the device was manufactured and for another three years.
 - 1.1. The year of manufacture is determined on the basis of the device's nameplate (*warranty cards are not issued!*).
 - 1.2. If the nameplate is illegible – the year of manufacture will be determined on the basis of the serial number or the code labels on the components (if any) together with the records in the GAZEX electronic manufacturing surveillance system. Such verification is subject to a charge. The fee is PLN 50.00 net for each started verification of a batch of up to 10 devices.
 - 1.3. Non-identifiable devices, i.e. with a damaged/illegible nameplate or no nameplate at all and with the GAZEX logo removed/covered permanently, shall not be subject to the warranty.
 - 1.4. The SGG3Y+ warranty covers all devices manufactured by GAZEX after 1st January 2021 which display the year of manufacture '2021' or later on the rating plate.

...

4. The warranty does not cover damage caused by:

- a) mechanical shock, vibration and effects, thermal effects and chemical effects;
- b) damages resulting from improper storage, faulty installation or improper operating conditions contrary to the device's User Manual;
- c) failure to carry out periodic maintenance or by other negligence;
- d) deliberate action by the user, third parties or persons not authorised to carry out repairs;
- e) lightning, power line surges, or electrostatic charges;
- f) force majeure or other events beyond the manufacturer's control.

Consumables including, but not limited to, fuses, batteries, built-in batteries, gas sensors (which are covered by the GAZEX OGG+ Limited Warranty), porous sintered components are not covered by the warranty.

...

6. The warranty rights cease to apply in the following cases:

- a) damage to the factory seals, service seals or identification marks on the device/components;
- b) interference with the device's internal systems or making any other changes to the device or control software or when the device is operated with non-original components not supplied by GAZEX;
- c) failure to carry out periodic maintenance activities, confirmed by systematic entries in the Periodic Inspection Record (enclosed with the device or devices cooperating with it) and indicated as necessary in the device's User Manual.

...

The full terms and conditions of SGG3Y+ are available at www.gazex.pl.

FAILURE TO COMPLY with all the terms and conditions of installation and operation of the detector as described in this manual (which shall include keeping the Periodic Inspection Record) will result in the loss of warranty rights. An extended version of the Periodic Inspection Record is available in .pdf format at: **www.gazex.pl**.

PLEASE NOTE:

Any complaints require that a warranty repair request or post-warranty repair request is registered on: <https://www.gazex.com/pl/serwis>

There is a possibility to extend the warranty to 5 years - Gazex Extended Warranty 5 year plus (RGG5Y+), according to the terms and conditions of RGG5Y+ available at www.gazex.pl.

The aforementioned warranty terms and conditions apply to devices operated in Poland.

A template of the Periodic Inspection Record is provided below.

The full version is available online in pdf format at: **www.gazex.pl**.

PERIODIC INSPECTION RECORD

FOR AN ACTIVE GAS INSTALLATION SAFETY SYSTEM or A TWO-THRESHOLD GAS DETECTION SYSTEM
or
DETECTORS AND METERS manufactured by **gazex**

**Serial numbers of
devices in the System**
(before installing the System,
fill in the table on the right!)

<i>DEVICE</i> (type)	<i>VERSION</i> (calibration)	<i>SERIES NO.</i>	<i>COMMENTS</i> (place)

The Record contains numbered pages, with the Gazex logo on the other side.

SYSTEM/DETECTOR START-UP:

DATE of the start-up	Time	<u>Comments</u> on the system components	<i>Comments</i> on the place or manner of installation	Actions carried out	Start-up carried out by (full name)	Signature
01						
02						

DATE of inspection	Time	DETECTOR No. / status	REACTION	OTHER symptoms (valve status)	Actions carried out	Legible signature of the inspector (full name)
1						
2						
3						
4						
5						
6						
7						
8						