ATEST GAZ

Reliable and Innovative Gas Detection & Safety Systems

Teta Gas

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.

History

Atest Gaz was established by Mr Zygmunt Pachole in Borzęcin, Poland in 1973, as a company specializing in gas heating technology.

In 1992, a branch of Atest Gaz called the Measurements and Automation Laboratory was created in Gliwice, Poland. The branch was managed by Aleksander (the son of Zygmunt Pachole) and his wife Małgorzata - current owners of the Company. The Laboratory dealt with electronic control and safety systems for heating equipment, but after the Company was transformed in 1996 to an independent entity called "Atest Gaz Automation and Electronics Lab", it began to specialise in the systems for detection of combustible and toxic gases. Since 2008, the Company has been operating as „ general partnership" **Atest Gaz A. M. Pachole.**

From the beginning, the owners of Atest Gaz relied on knowledge, competence, high quality, innovation and investments in state-of-the- art technologies.

1973 – Beginning
Establish company specializing in gas heating technology „Atest-Gaz" in Borzęcin

2005 – Sigma Gas
Developed a Sigma Gas line based on Sigma BUS digital communication

2006 – Sigma SmArt
Creating a flagship Gas Detector Sigma SmArt

2012 – Atest Gaz
Brand refreshment

2016 – Teta Gas
Developed a series of detectors based on Teta BUS's innovative, two-wire, digital communication system

2019 – Line 4.0
Implementation of the innovative 4.0 line of Gas Detectors with the new flagship SmArtGas 4

1.1 Teta Gas System
Two Wire Vision!

Addressable Gas Safety System for Ventilation and Heating sector

Stationary Gas Safety Systems have been widely used for many years in public utility facilities and industrial facilities to protect people, property and the environment against gas hazards.
The presence of hazardous gases in the surrounding atmosphere applies not only to trained personnel of highly specialized industrial plants, but also to unprepared or particularly sensitive people, such as children, pregnant women, and the elderly.

Teta Gas system is a modern Gas Detection System that uses Digital Data Transfer – Teta BUS, which via a single pair of cables, allows for both supply and addressable communication with the gas detectors. It is intended to provide security of public utility, civil engineering and residential facilities (underground garages, boiler rooms or halls heated with radiators) and protect people staying at such facilities from dangerous gas hazards– CH4 or toxic CO/ NO2.
Teta Gas also provides protection against flammable gases from LPG installations in cars or H2 in battery charging rooms - (Teta EcoH - New!).

Teta Gas detectors series includes:

- **Teta EcoWent** - used to detect carbon monoxide
- **Teta EcoDet** and **Teta miniDet** - used to detect propane-butane
- **Teta EcoTerm** - used to detect methane
- **Teta EcoH** - used to detect hydrogen

Teta Bus - Polish technical idea

The concept and design of two-wire **Teta BUS** have been developed entirely by the research and development department of Atest Gaz in collaboration with specialists from the Faculty of Electronics of Silesian University of Technology.

Atest Gaz provides a 5-year warranty for Teta Gas series Gas Detectors.

An example of a CO and LPG measuring point for a Garage

T-connector

*The Teta Gas system allows you to connect up to about 50 measuring points *.*
Thanks to the functionality of automatic line supervision and signaling of its damage, the system guarantees a level of safety unparalleled in this group of devices

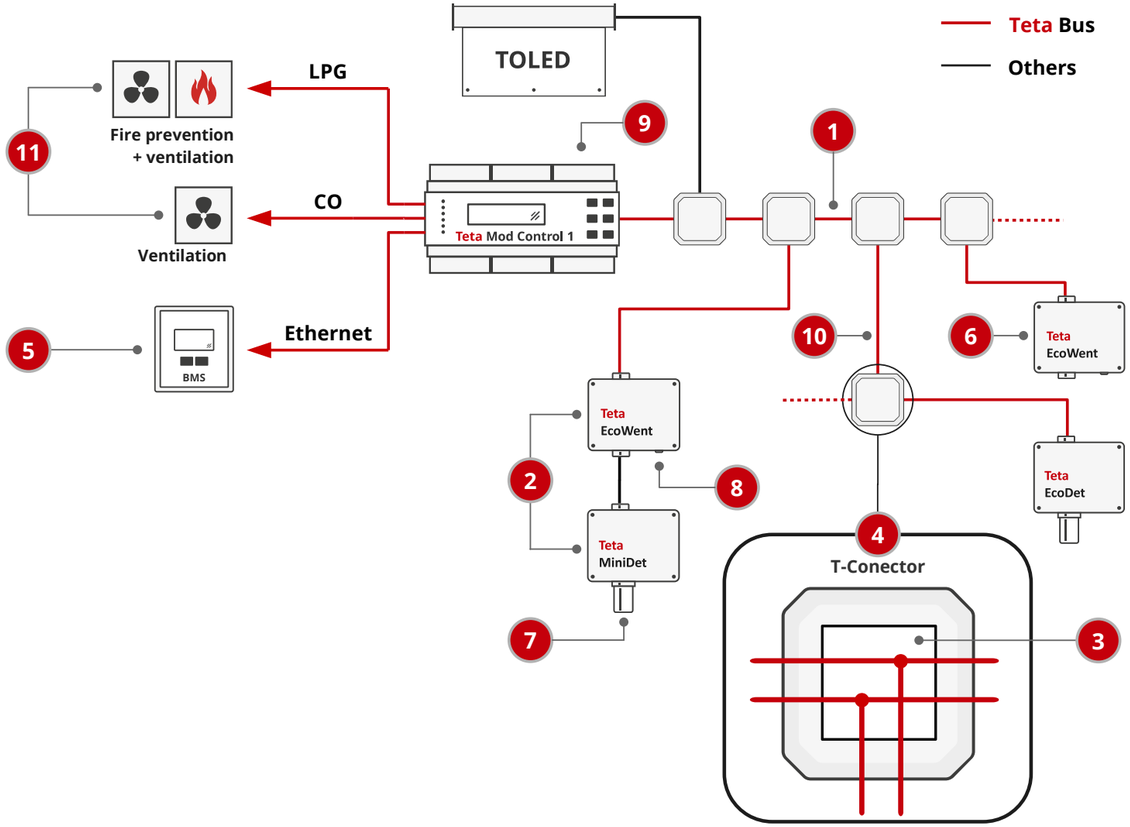
Teta EcoWent

Teta MiniDet

**The number of devices cooperating with each other depends on many factors such as cable cross-section, bus length, etc. Please contact us if you have any questions.*

2.0 Teta Gas System
Garages and underground car parks

Addressable Gas Safety System for garages and underground car - sample device configuration



Advantages of the system - Garages and underground car parks
Teta Gas

1 A two-wire BUS

Power supply and data transmission on one, easily accessible two-wire cable, e.g. YDY – no twisted pair cables, shields etc.!

2 100 addressable detectors

Teta Gas system allows connecting up to 100 addressable gas detectors (50 measuring points for CO + LPG) on one bus.

3 Arbitrary polarisation

The system is designed as installer-friendly – it is impossible to make an error during installation.

4 T-connector

The junction box supplied (optional) with the system enables efficient and quick connection of further detectors on the bus (two-wire cable).

5 BMS

A big advantage of the system is its simple integration with BMS (e.g. Ethernet, EIB and other Intelligent Building buses).

6 Unique addressing

A simple and clear method of assigning and verifying detector addresses. Additionally, it is possible to check the status of the given detector on the Control Unit.

7 Catalytic sensor

Catalytic sensor designed for sensing LPG guarantees reliable control of HVAC and alarms warning against a fire or explosion.

8 Electromechanical sensor

Electrochemical sensor used for sensing CO, guarantees stable and false alarm-proof operation which is reflected in reliable control of HVAC and alarms warning against CO poisoning.

9 Identification of a hazardous location

In the event of a gas leak at a facility, the Control Unit allows service technicians to inspect the hazardous location, which significantly affects the response time and simultaneously increases the level of protection of people and property.

10 Flexible architecture

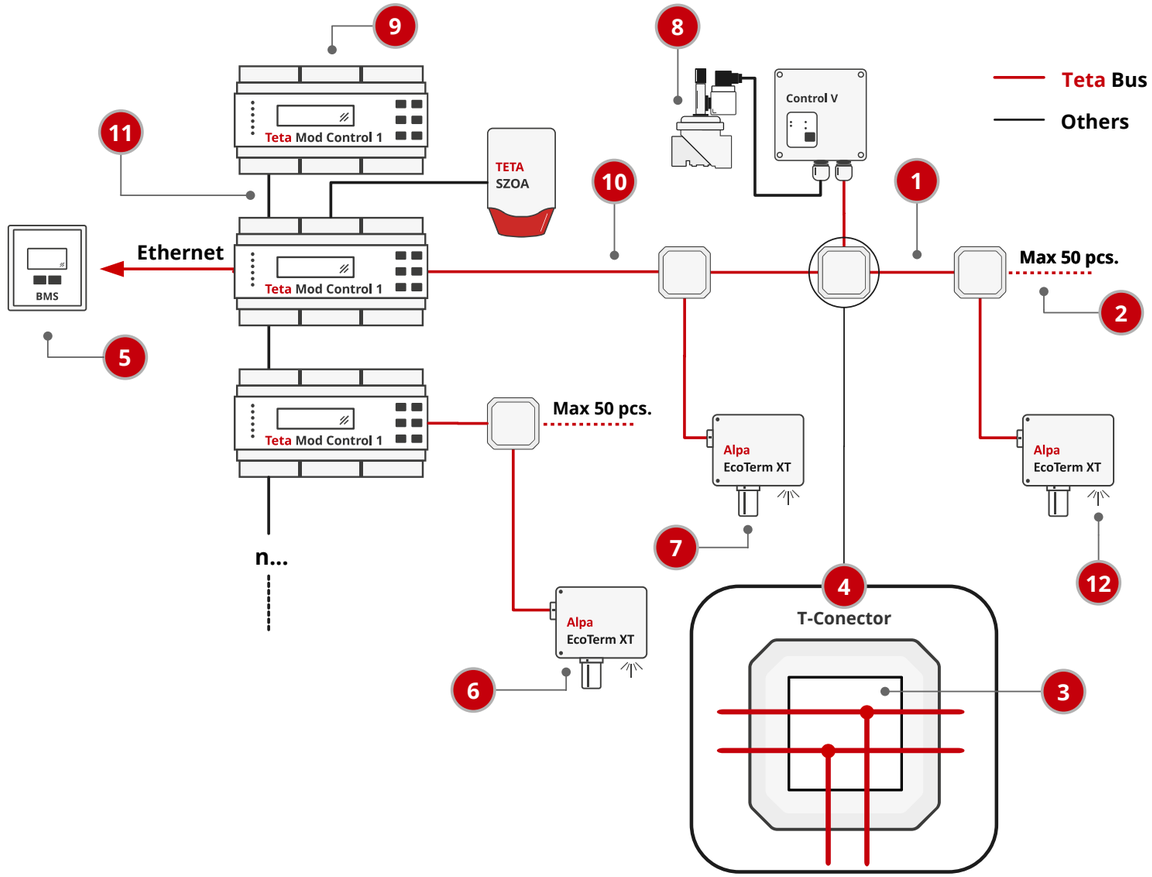
Teta BUS, unlike e.g. a popular RS-485 bus, allows free branching, therefore it is possible to have a low-cost, safe and functional system architecture in a garage.

11 Easy integration

Teta Gas system provides independent alarms and control outputs for each of the gases – this allows splitting signals and selective HVAC control. It is also possible to generate selectively a fire protection signal in the event of LPG leak.

2.1 Teta Gas System
Halls heated by radiators

Addressable Gas Safety System for Halls - sample device configuration



Advantages of the system - Halls heated by radiators
Teta Gas

1 A two-wire BUS

Power supply and data transmission on one, easily accessible two-wire cable, e.g. YDY – no twisted pair cables, shields etc.!

2 50 addressable detectors

Teta Gas system allows connecting up to 50 addressable gas detectors Teta EcoTerm on one bus.

3 Arbitrary polarisation

The system is designed as installer-friendly – it is impossible to make an error during installation.

4 T-connector

The junction box supplied with the system enables efficient and quick connection of further detectors on the bus (two-wire cable).

5 BMS

A big advantage of the system is its simple integration with BMS (e.g. Ethernet, EIB and other Intelligent Building buses).

6 Unique addressing

A simple and clear method of assigning and verifying detector addresses. Additionally, it is possible to check the status of the given detector on the Control Unit.

7 Catalytic sensor

Catalytic sensor designed for sensing LPG guarantees reliable control of valve and alarms warning against a fire or explosion.

8 Shut-off valve

For objects such as boiler rooms, halls where it is required to cut off the gas supply, it is possible to retrofit the Teta Gas system with a suitable shut-off valve with a 12V or 230V coil.

9 Identification of a hazardous location

In the event of a gas leak at a facility, the Control Unit allows service technicians to inspect the hazardous location, which significantly affects the response time and simultaneously increases the level of protection of people and property.

10 Flexible architecture

Teta BUS, unlike e.g. a popular RS-485 bus, allows free branching, therefore it is possible to have a low-cost, safe and functional system architecture in a garage.

11 Easy expansion of the system

For large facilities it is possible to connect Control Units in cascade. This allows for a wide expansion of systems.

12 Green safety light

Teta EcoTerm is equipped with a high-power LED, which informs about gas hazards or their absence (the correct operation of the system is presented in the green color of the diode). Easy identification of the detector status, even from a distance of a dozen of meters – the only solution with such advantages available in the market!

3.0 Gas Detector

Gas Detectors - Teta Gas series

Teta Gas series - Gas Detectors are designed to detect gases such as: CO, LPG, CH4, H2. Designed as part of the Teta Gas Safety System, they communicate with the control unit via the Teta BUS two-wire power and signal bus, which allows for exceptional ease and speed of installation. The applied electrochemical or catalytic sensors guarantee reliable operation and no false alarms.

What do you get?

Economy - Up to 20% savings when installing the Teta Gas system compared to others on the market

Installation comfort - The system is designed as installer-friendly – it is impossible to make an error during installation.

Reliable information about the security level in the protected facility - no false alarms

GARAGE

Teta EcoWent

Teta EcoWent is an addressable gas detector for detecting carbon monoxide (CO) concentrations in the surrounding atmosphere.

CO

GARAGE

Teta MiniDet

Teta MiniDet is an addressable gas detector for detecting propane-butane (LPG). The device is designed for use with gas detector Teta EcoWent, thus creating a complete CO and LPG Detection System.

LPG

3.0 Gas Detector

BOILER ROOM GARAGE

Teta EcoDet

Teta EcoDet is an addressable Gas Detector for detecting propane-butane (LPG) concentrations. Unlike the Teta miniDet, this detector can work independently.

LPG

GARAGE

Teta EcoN

Teta EcoN is gas detector for detecting nitrogen dioxide (NO2).

NO2

BOILER ROOM HALL

Teta EcoTerm

Teta EcoTerm is a gas detector that stands out on the market with the implemented **GASOK** solution - a high-power LED indicator provides identification of the detector status even from a distance of a dozen of meters! It is designed to detect methane (CH4).

CH4

*The original and innovative **GASOK** message allows for an immediate assessment of the system's efficiency and the level of security, consistently on all devices. Any other light message, apart from green light, obliges the staff to react appropriately.*

Teta EcoH

Teta EcoH, like the Teta EcoTerm detector, is a gas detector which stands out on the market with the implemented **GASOK** solution, thanks to which the information about the current state of the system is clear and reliable. Designed to detect hydrogen (H2).

H2

NEW!

HYDROGEN DETECTION IN BATTERIES

3.1 Gas Detector
Technical specification

	Teta EcoWent		Teta MiniDet		Teta EcoDet	
Power supply • V_{cc} • Power P_{cc} • Power P_{cc} (CO+LPG)	12 – 50 V 0.5 W 1.5 W		6 V 0.8 W -		12 – 50 V 1.5 W -	
Environment	In Operation	Storage	In Operation	Storage	In Operation	Storage
• Ambient temperatures • Humidity	-20 – 60° C 10 – 90% long term 0 – 99% short term	0 – 60° C 30 – 90% long term	-20 – 60° C 10 – 90% long term 0 – 99% short term	0 – 60° C 30 – 90% long term	-20 – 50° C 10 – 90% long term 0 – 99% short term	0 – 50° C 30 – 90% long term
Detected substance	Carbon monoxide (CO)		Propane - butane (LPG) (C3H8, C4H10)		Propane - butane (LPG) (C3H8, C4H10)	
Measuring range	0-300 ppm		50% LEL		50% LEL	
IP	IP 43		IP 43		IP 43	
Digital communication parameters • Communication protocol	Teta BUS		-		Teta BUS	
Integrated signalling equipment (visual)	LED controls 7-segment type display LED		-		LED controls 7-segment type display LED	
Protection class	III		III		III	
Cable glands (cable diameter range)	Gland pressed into the installation pipe – diameter of the pipe 16 mm. Glands multiband – diameter of wire 3.5 – 12 mm		Gland pressed into the installation pipe – diameter of the pipe 16 mm. Glands multiband – diameter of wire 3.5 – 12 mm		Gland pressed into the installation pipe – diameter of the pipe 16 mm. Glands multiband – diameter of wire 3.5 – 12 mm	
Acceptable cables	0.2 – 2.5 mm^2 – solid wire 0.2 – 2.5 mm^2 – multi-wire cable		0.2 – 2.5 mm^2 – solid wire 0.2 – 2.5 mm^2 – multi-wire cable		0.2 – 2.5 mm^2 – solid wire 0.2 – 2.5 mm^2 – multi-wire cable	
Enclosure material	ABS		ABS		ABS	
Weight	0.3 kg		0.3 kg		0.3 kg	
Mandatory periodic inspection	Every 12 months (Calibration Certificate validity)		Every 12 months (Calibration Certificate validity)		Every 12 months (Calibration Certificate validity)	
Lifetime of consumables	Sensor Plate PWS-017-CO - 5 years*		Measuring Head MiniPel PWS-016-LPG -5 years *		Measuring Head MiniPel PWS-016-LPG -5 lat *	
Mounting	4 screw holes 4 mm in diameter		4 screw holes 4 mm in diameter		4 screw holes 4 mm in diameter	

* For operation in dwelling houses, public buildings, car parks and garages

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3.1 Gas Detector
Technical specification

	Teta EcoTerm		Teta EcoN		Teta EcoH	
	12– 50V 1.8 W -		12 – 50 V 0.5 W -		12 – 50 V 1.8 W -	
	In Operation	Storage	In Operation	Storage	In Operation	Storage
	-20 – 50° C 10 – 90% long term 0 – 99% short term	0 – 50° C 30 – 90% long term	-20 – 50° C 10 – 90% long term 0 – 99% short term	0 – 50° C 30 – 90% long term	-20 – 50° C 10 – 90% long term 0 – 99% short term	0 – 50° C 30 – 90% long term
	Methane (CH4)		Nitrogen dioxide (NO2)		Hydrogen (H2)	
	50% LEL		0-10 ppm		50% LEL	
	IP 43		IP 43		IP 43	
	Teta BUS		Teta BUS		Teta BUS	
	LED controls 7-segment type display LED		LED controls 7-segment type display LED		LED controls 7-segment type display LED	
	III		III		III	
	Gland pressed into the installation pipe – diameter of the pipe 16 mm. Glands multiband – diameter of wire 3.5 – 12 mm		Gland pressed into the installation pipe – diameter of the pipe 16 mm. Glands multiband – diameter of wire 3.5 – 12 mm		Gland pressed into the installation pipe – diameter of the pipe 16 mm. Glands multiband – diameter of wire 3.5 – 12 mm	
	0.2 – 2.5 mm^2 – solid wire 0.2 – 2.5 mm^2 – multi-wire cable		0.2 – 2.5 mm^2 – solid wire 0.2 – 2.5 mm^2 – multi-wire cable		0.2 – 2.5 mm^2 – solid wire 0.2 – 2.5 mm^2 – multi-wire cable	
	ABS		ABS		ABS	
	0.3 kg		0.3 kg		0.3 kg	
	Every 12 months (Calibration Certificate validity)		Every 12 months (Calibration Certificate validity)		Every 12 months (Calibration Certificate validity)	
	Measuring Head MiniPel PWS-016-LPG -5 years *		Sensor Plate PWS-017-NO2-10 - 5 years*		Measuring Head MiniPel PWS-016-H2 -5 years *	
	4 screw holes 4 mm in diameter		4 screw holes 4 mm in diameter		4 screw holes 4 mm in diameter	

* For operation in dwelling houses, public buildings, car parks and garages

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4.0 Control Unit
Teta MOD Control 1

Control Unit Module

Control Unit Module Teta MOD Control 1 is a device for controlling gas detectors and for dedicated controlling compatible devices depending on the detected gas, thus creating a unique Gas Detection System that allows connecting up to 100 detectors! Owing to the functionality of automatic supervision of the line and signalling its damage, the system guarantees an unusual for this device group level of safety and comfort of use in this. The Module is compatible with BMS and additionally it can be equipped with UPS system.

Technical specification

Power supply • Voltage V_{CC} • Power P_{CC}	 15 – 50 V 2.5 W
Environment • Ambient temperatures • Humidity • Pressure • pH	 0 – 50 °C 10 – 90% long term 0 – 99% short term 1013 ± 10% hPa 5.5 – 7
IP	IP 20
Parameters of binary inputs • R_{IN} • Inactive (not negated) • Active (not negated)	 10 kΩ 0 – 1 V 10 – 50 V Any polarity
Digital output parameters • Relay	 Floating contacts: AC1: 230 V ~ / 3 A DC1: 230 V / 0.25 A DC1: 24 V / 3 A Not protected
Digital communication parameters TETA BUS port • Communication protocol GTW port • Electric standard • Communication protocol	 RS - 485 RS - 485 Modbus ASCII / RTU, 4800 – 115200 b/s, no parity / even parity/ odd parity, quantity of bits 7/8 (only for Modbus ASCII)
Integrated signalling equipment (visual)	Wyświetlacz alfanumeryczny z podświetleniem 2x16 typu LCD Kontrolki optyczne typu LED
Integrated signalling equipment (audible)	70 dB, 1m distance
Protection class	III
Acceptable cables	0.08 – 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	Self – extinguishing PPO
Weight	0.4 kg
Mounting	On DIN-35 / TS35

5.0 Teta Gas System
Accessories

Warning LED Display - TOLED

TOLED Warning LED Display are addressable warning boards designed to display legible and visible information about possible gas hazards and intended for application in public facilities, such as underground car parks or parking spaces. When the warning system is defective no information about possible hazard is broadcasted to users of endangered areas, which exposes potential users of safeguarded facilities to extreme hazard. Thus, messages displayed in such boards must be **legible** and disseminated **reliable** regardless of possible defects.

Warning Beacon with Sounder - SZOAmini

Warning Beacon with Sounder Alpa SZOAmini is a device designed of indication of alarms and is capable of collaborating with any Control Unit manufactured by Atest Gaz. The device is dedicated for indoor installation.

Solenoid valves manually reset - MSV / SV / ZB

Atest Gaz's offer includes MSV / SV / ZB valves with wide parameters. They are designed to cut off the gas supply to the protected facility.

Valve Controller - Control V

The valve controller of the Control V type is designed for incorporation within all Atest Gas systems to extend functionalities of such systems with control of gas shutoff valves. The valve is shut off after the third level of gas hazard (alarm level) is detected by collaborating gas detectors. Relevant information about such an event is received by a control unit and it sends, in turn, a signal to the valve controller to shut the valve off. The valve can be controlled via the binary signals (DI).

TOLED

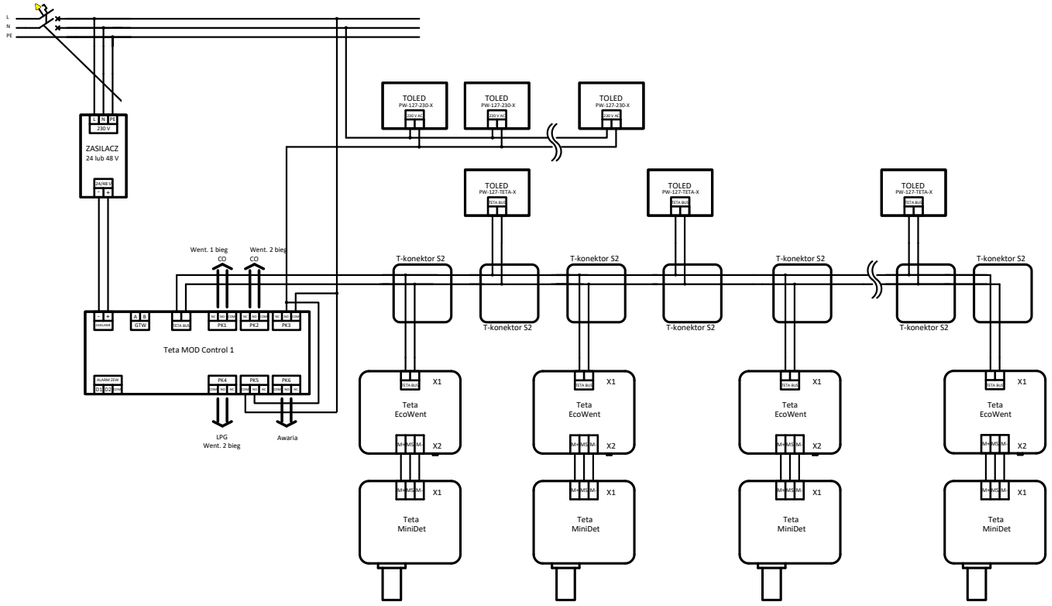
SZOAmini

MSV

Control V

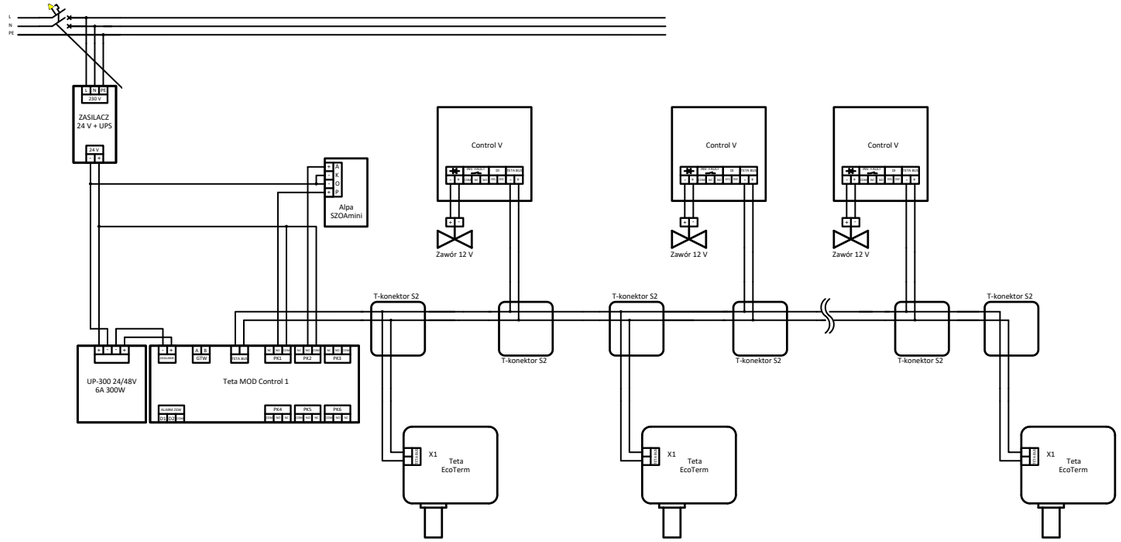
6.0 Teta Gas System

Sample scheme for the Garage



6.1 Teta Gas System

Sample scheme for the Heating Sector



ATEST GAZ

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

www.atestgaz.com

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