



## User Manual

Control Unit

**EcoAlpa5**

Product code: PW-090-X



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## Remarks and reservations


-  Connection and operation of the device is allowed only after reading and understanding the contents of this document. Keep User's Manual with the device for future use.
  -  The manufacturer bears no responsibility for errors, damages and failures caused by improper selection of devices and cables, improper installation or failure to understand the contents of this document.
  -  Unauthorised repairs and modifications of the device are not allowed. The manufacturer bears no responsibility for the results of such interventions.
  -  Excessive mechanical, electrical or environmental exposure may result in damage to the device.
  -  Use of damaged or incomplete devices is not allowed.
- The design of the gas detection system for a protected facility may involve other requirements throughout all stages of the product life.
-  It is unacceptable to use parts other than those specified in table 15.

## How to use this manual?

-  The following symbols of optical indicators status are used throughout the document:


Symbol	Interpretation
	Optical indicator on
	Optical indicator flashing
	Optical indicator off
	Optical indicator status not determined (depends on other factors)

**Table 1: Optical indicators status notation**

-  Important parts of the text are marked as follows:



Pay special attention to information given in these fields.

-  This User Manual consists of a main text and attached appendices. The appendices are independent documents and can be used separately from this Manual. Page numbering of appendices starts anew with no relationship to page numbering of the main document and appendices may have their own tables of contents. In the right bottom corner of each page you can find the name (symbol) of any document included into the User Manual package with its revision (issue) number.

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## 1 Preliminary information

The EcoAlpa5 Control Unit enables visualization of the entire Gas Safety System and provides appropriate output signals for the system control.





It is a control unit with five communication channels designed for collaboration with gas detectors of the XT series.

It has outputs to connect light and sound warning devices as well as binary lines for transmission of information about the system status. In addition, the control unit can be integrated with an external system for plant automation, e.g. BMS. Depending on the design option the unit can also actuate the gas shut off valve to isolate supply of gas to monitored facilities.

EcoAlpa5 Control Unit reads:



-  signals from gas detectors,
-  digital input (DI),
-  operator's inputs (keyboard).

By using this information EcoAlpa5:

-  activates signalling devices connected (both acoustic and visual),
-  generates visual, acoustic indications for users,
-  activates system outputs (e.g. to DCS or a ventilation system),
-  generates shutoff signals for valve.

### 1.1 Types of the control unit

The EcoAlpa5 unit is available in several manufacturing options that are able to perform selected functionalities of the system, such as:

-  control for the gas shutoff valve (various gas types),
-  switching the system over to the backup power supply voltage to continue operation of the system when the mains voltage disappears.

No.	Product code	Parameters of matching valves	Possible distance to the valve	Stand-by voltage
1	PW-090-0-0	-	-	-
2	PW-090-0-UPS	-	-	Yes
3	PW-090-VL-0	12 V, coil resistance $\geq 4 \Omega$ , power consumption $\leq 36 \text{ W}$	Short	-
4	PW-090-VL-UPS	12 V, coil resistance $\geq 4 \Omega$ , power consumption $\leq 36 \text{ W}$	Short	Yes
5	PW-090-VR-0	12 V, coil resistance $\geq 2 \Omega$ , power consumption $\leq 72 \text{ W}$	Long (ZMZ <sup>1</sup> device is needed for valve connection)	-
6	PW-090-VR-UPS	12 V, coil resistance $\geq 2 \Omega$ , power consumption $\leq 72 \text{ W}$	Long (ZMZ device is needed for valve connection)	Yes
7	PW-090-V230-0	230 V	Long	-

**Table 2: Types of EcoAlpa5 Control Unit**

<sup>1</sup> Remote valve control module

## 2 Safety



All activities related to connecting detectors, signallers and other system components must be carried out while Control Unit's power supply is off.



Despite the power supply voltage for the Gas Safety System is off, dangerous voltage may persist across terminals of the Control Unit. Such a voltage may come from another system controlled by the same unit, for instance ventilation, that use one output pin of the Control Unit.



The gas detector must be reliably secured during any repair, installation or maintenance works.

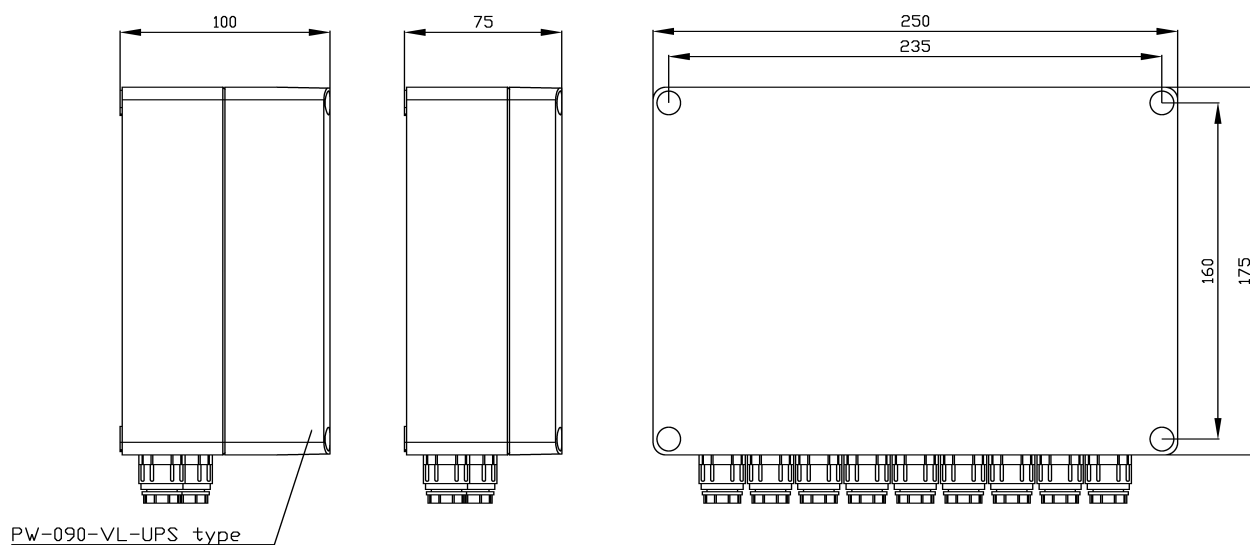


Before painting the facility walls make sure that the device is properly secured.

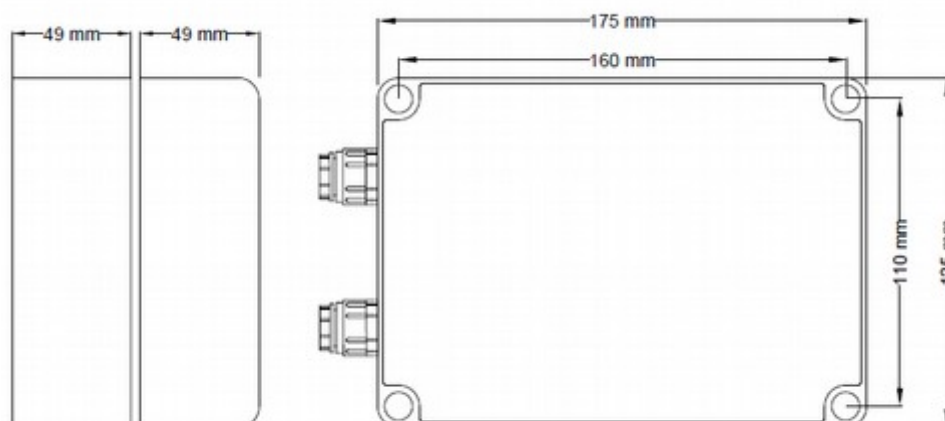


Before use of silicon or silicon-based materials (paints, adhesives, sealant, etc.), make sure that the device is properly secured against unintentional coating.

### 3 Description of the construction



**Figure 1: The construction of the device and its dimensions**



**Figure 2: The construction of the Remote valve control module and its dimensions**



### 3.1 Disassembling and safe securing of a front cover for the EcoAlpa5 Control Unit

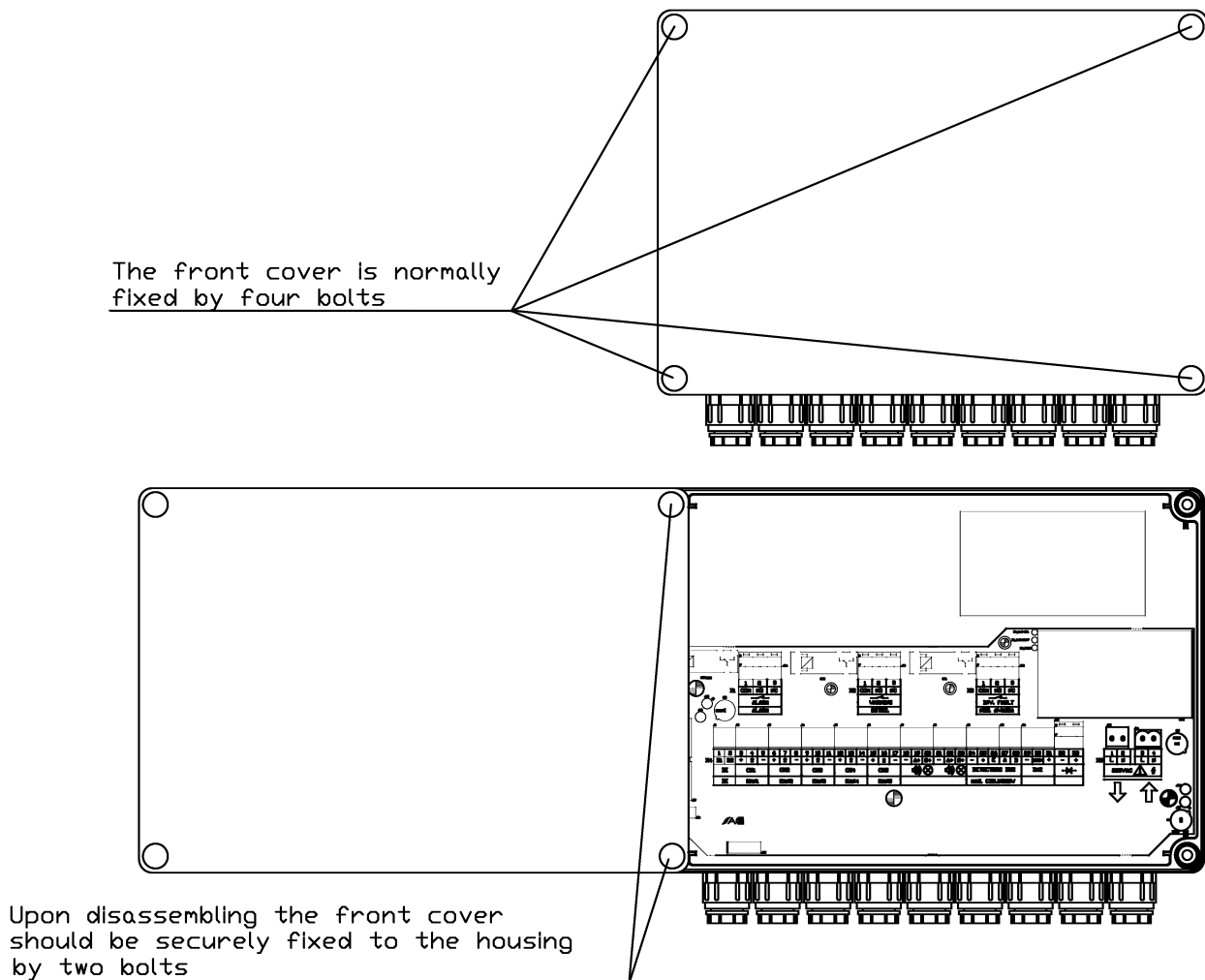


Figure 3: Disassembling and safe securing of a front cover for the housing of the EcoAlpa5

## 4 Input-output interfaces

### 4.1 Electric interface

#### 4.1.1 Control unit electric interface

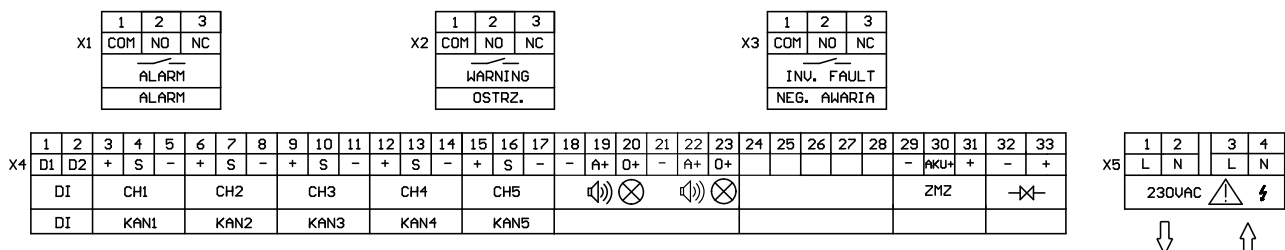










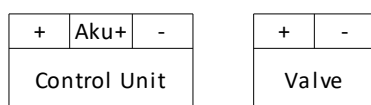
Figure 4: Electric connections for control unit

Port designation	Name	No.	Pin	Description
ALARM 	X1			Alarm relay output, see details in Section 4.2
		1	COM	Common
		2	NO	Normally open
		3	NC	Normally close
WARNING 	X2			Warning relay output, see details in Section 4.2
		1	COM	Common
		2	NO	Normally open
		3	NC	Normally close
INV. FAULT 	X3			Failure relay output (inverted), see details in Section 4.2
		1	COM	Common
		2	NO	Normally open
		3	NC	Normally close
DI	X4			External alarm inputs, see details in Section 4.3
CH1-5		1-2	D1, D2	Input 1 and 2
				Gas detector ports 1 – 5
		3, 6, 9, 12, 15	+	Positive
		4, 7, 10, 13, 16	S	Signal inputs
		5, 8, 11, 14, 17	-	Negative
				Port with output voltage of 12V for connection of warning devices , see details in Section 4.4
		18, 21	-	Negative
		19, 22	A+	Positive – for a sound warning device (siren)
		20, 23	O+	Positive – for a light warning beacon
ZMZ (only for PW-090-VR-X)				ZMZ (Remote Valve Control Module) port, see details in Section 4.5
		29	-	ZMZ negative port
		30	AKU+	ZMZ battery positive port
		31	+	ZMZ positive port
 (only for PW-090-VL-X)				Port with output voltage of 12V for connection of a shutoff valve, see details in Section 4.6
		32	-	Negative
		33	+	Positive

Port designation	Name	No.	Pin	Description
230VAC   	X5			Power supply 230 V – see parameters in Table 14
		1	L	Output voltage of 230V to supply other terminals – see Figure 8)
		2	N	Neutral
		3	L	230 V power supply input
		4	N	Neutral

**Table 3: Connections diagram for control unit**

#### 4.1.2 Remote valve control module ZMZ electric interface



**Figure 5: Electric connections for ZMZ**

Port designation	Name	Description
Control Unit		Interface port to a control unit
	+	Positive
	Aku+	Positive line for the power backup battery of the ZMZ module
	-	Negative
Valve		Output voltage of 12 V to control a shutoff valve
	+	Positive
	-	Negative



**Table 4: Connections diagram for ZMZ**

Interconnections between a remote valve control (ZMZ) module and the EcoAlpa5 control unit are shown in Figure 10.



## 4.2 Relays

The EcoAlpa5 Control Unit has three relays.

### 4.2.1 Alarm

-  the output is active (contacts COM and NO are shorted) when appearance of a hazardous gas is revealed by the detection system and the alarm threshold for gas concentration is exceeded or an external alarm signal is received,
-  the output is inactive (contacts COM and NO are isolated) when the alarm threshold is not exceeded and no external alarm signal is received.

### 4.2.2 Warning

-  control for a shutoff valve with the coil voltage of 230 V (only for the PW-090-V230-0 design option) – interconnections between the control unit and the valve are shown in Figure 8,
-  output of a warning signal for other design options of the control unit:

- the output is active (contacts COM and NO are shorted) when appearance of a hazardous gas is revealed by the detection system and the warning threshold for gas concentration is exceeded or an external alarm signal is received,
- the output is inactive (contacts COM and NO are isolated) when the warning threshold established for the gas detection system is not exceeded and no external alarm signal is received.

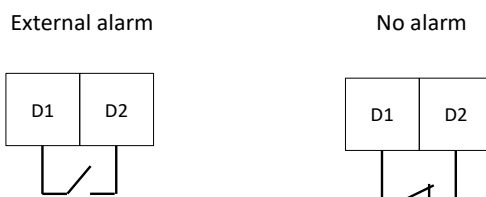
#### 4.2.3 Failure (inverted output)

- the output is active (contacts COM and NO are shorted) when no failure is reported by the gas detection system,
- the output is inactive (contacts COM and NO are isolated) when a failure is reported by any single component of the system or when power voltage for the system disappears.

#### 4.3 Input of an external alarm

This input is provided to enable collaboration of the gas detection system with other external systems of automatic control, e.g. fire protection, BMS. Upon the external alarm input is activated, the sound and light warning devices are activated as well, the gas supply valve is closed and relay outputs for warning and alarm signals are closed. The activated status of the external alarm input is shown on the front panel of the control unit by the EXT. ALARM indicating LED, see Table 14.

The input of an external alarm should be controlled by means of a toggle (no-voltage) switch. The external alarm shall be activated when the contacts are open (see Figure 6). If the output is not used its D1 and D2 contacts must be shorted by means of a jumper.



**Figure 6: Status of contacts for a toggle switch connected to inputs of an external alarm**

#### 4.4 Optical – acoustic signalling device output

The control unit is provided with an output dedicated for control of a sound and light warning device. Upon the warning threshold of gas concentration is exceeded only a warning lamp (beacon, stacklight, etc.) is activated. Exceeding of the alarm level for gas concentration leads to production of a modulated signal at the output assigned to an alarm siren (see parameters of these outputs in Table 14).

#### 4.5 Output for the ZMZ module

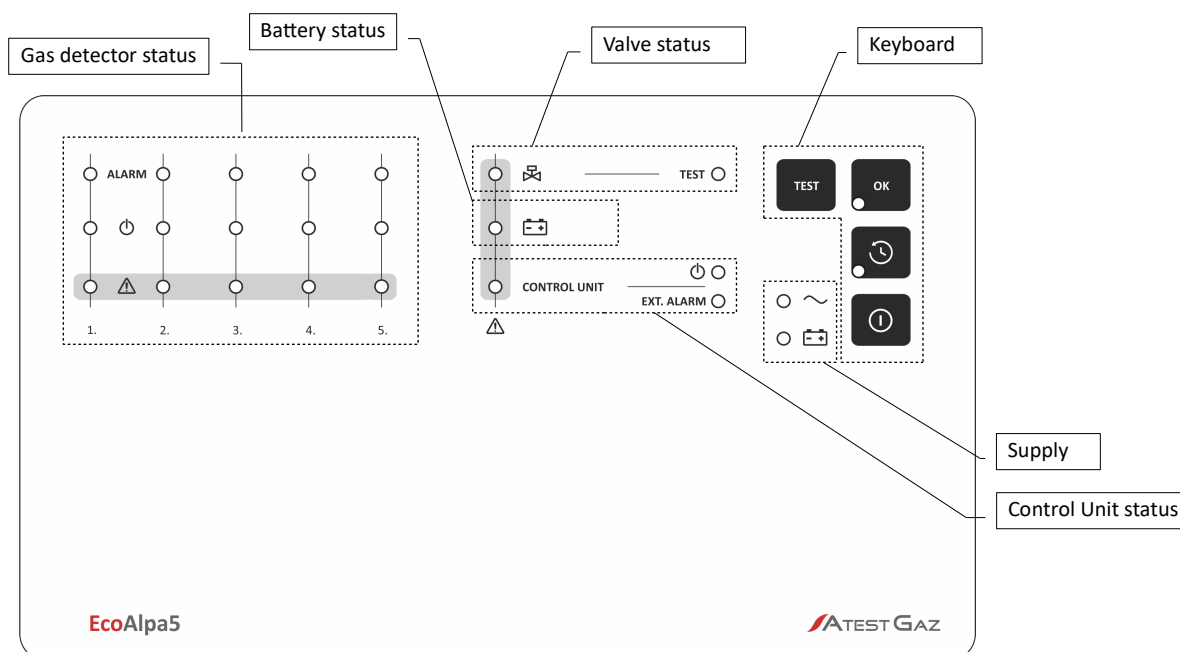
This output is designed to connect an additional Remote Shutoff Module ZMZ.

#### 4.6 Output for valve control

This output is used to control a gas shutoff valve by tripping the valve trigger switch. Parameters of the output enable connection of a single valve with parameters listed in Section 9.

However, after a gas detector reports exceeding of the alarm level, the supply of gas (valve closing) takes place only after a specific delay (about 5 seconds) and three output pulses necessary to close the valve are produced at that output. On the contrary, when alarm is reported at the input for an external alarm, the gas supply is isolated with no delay.

## 5 User interface



**Figure 7: Front panel**








### 5.1 Indicators of detector statuses

These indicators are designed to reflect operation statuses of detectors (1-5) collaborating with the control unit.

Indicator	Status / colour	Information
<b>ALARM</b>	○	No emergency threshold is exceeded
	◐ / red	1 blink – first emergency (alarm) threshold is exceeded
	◑ / red	2 blinks – second emergency (alarm) threshold is exceeded
	◒ / red	3 blinks – third emergency (alarm) threshold is exceeded
⏻	○	A specific detector reports its failure or its maximum level of gas detection is exceeded
	● / green	A specific detector operates correctly and no exceeding of emergency threshold is exceeded
⚠	○	No failure
	◐ / yellow	Slow blinking of the LED – incorrect settings for the number of measurement channels (the control unit found a detector that is connected to the input associated with an inactive channel) see details in Section 8.4.1
	● / yellow	Failure of a specific detector or its communication line






**Table 5: Purpose of the Gas Detectors indicator**

## 5.2 Indicators of the valve status

Indicator	Status / colour	Information
		Sound operation of the valve
	 / yellow	Valve failed (e.g. no valve detected, short on the valve communication line)
TEST		No need for valve testing
	 / green	Slow blinking of the LED – test of the valve is required (see details in Section 8.5.2)
	 / green	Quick flashing of the LED – waiting to run the valve test
	 / green	Valve test in progress






**Table 6: Purpose of the valve indicator**

## 5.3 Battery status

Indicator	Status / colour	Information
		All backup batteries in sound condition
	 / yellow	1 blink – failure of the backup battery for the system supply
	 / yellow	2 blinks – failure of the backup battery for the valve supply
	 / yellow	3 blinks – failure of the both batteries





**Table 7: Purpose of the battery indicator**

## 5.4 Control unit status

Indicator	Status / colour	Information
 / CONTROL UNIT	 / yellow	Failure of the control unit
	 / green	Sound operation of the control unit
EXT. ALARM	 / red	External Alarm is active

**Table 8: Purpose of the control unit indicator**










## 5.5 Power supply

Indicator	Status / colour	Information
	 / green	The control unit is supplied with the voltage of 230 V AC (mains)
	 / green	Slow blinking of the indicator – the control unit is supplied from the backup battery

**Table 9: Purpose of the power supply indicator**

## 5.6 Keypad




Operation of the control unit is controlled by means of a user interface panel that makes it possible to view the control unit menu.

Button	Status / colour	Description
		Execution of tests (see details in Sections 8.5.1 and 8.5.2)
	 / green	Regular operation of the device – a sound warning device (buzzer) can be muted. Configuration of the control unit (see details in Section 8.4)
	 / green	Configuration of the control unit (see details in Section 8.4)
		Logger of historical events (see details in Section 5.6.1)
		The log of events is empty
	 / green	A historical event is recorded
	 / green	Viewing of the logger
		Switching the control unit off (the button is available for devices that can operate with a backup battery). To switch the device off depress and hold the button for about two seconds.


**Table 10: Button description**

### 5.6.1 Memory (logger of events)







The control unit is furnished with a memory unit to keep a log of events. Such events include:

-  receiving of information about an alarm, warning or failure reported by a gas detector in any channel,
-  failure of the control unit itself, its battery or the monitored shutoff valve,
-  receiving of an external alarm signal.

Historical events are presented on the user manual panel, similar to regular operation of the device (see details in Section 5). The only difference is consisted in the fact that the indicated information refers to past (historical) events.

When any historical event is stored in the log, the LED indicator of the  button starts blinking slowly to indicate that the log is not empty.


If so, the following may happen:




-  depressing if the  button navigates to the mode of the memory viewing, which makes it possible to display its content (the LED indicator embedded into the button is continuously on),
-  the log of events can be erased by depressing the  button and holding it for about three seconds when the mode of the memory viewing is active,
-  the memory units automatically quits the mode of the memory viewing after 15 seconds or after second depressing of the  button.


## 6 Buzzer – an internal sound warner

The EcoAlpa5 Control Unit has an embedded sound warning device, commonly called a buzzer. It is meant to pronounce a sound signal when intervention of a system operator may prove necessary, for instance in case of a gas hazard or malfunctioning of any system component.

The buzzer is activated in the following cases:

-  gas alarms, i.e. exceeding of a warning or alarm concentration thresholds reported by any gas detector connected to the control unit,

-  defect of any gas detector connected to the control unit or breakdown of communication with any detector,
-  failure of the control unit itself,
-  receiving of information about an external alarm.

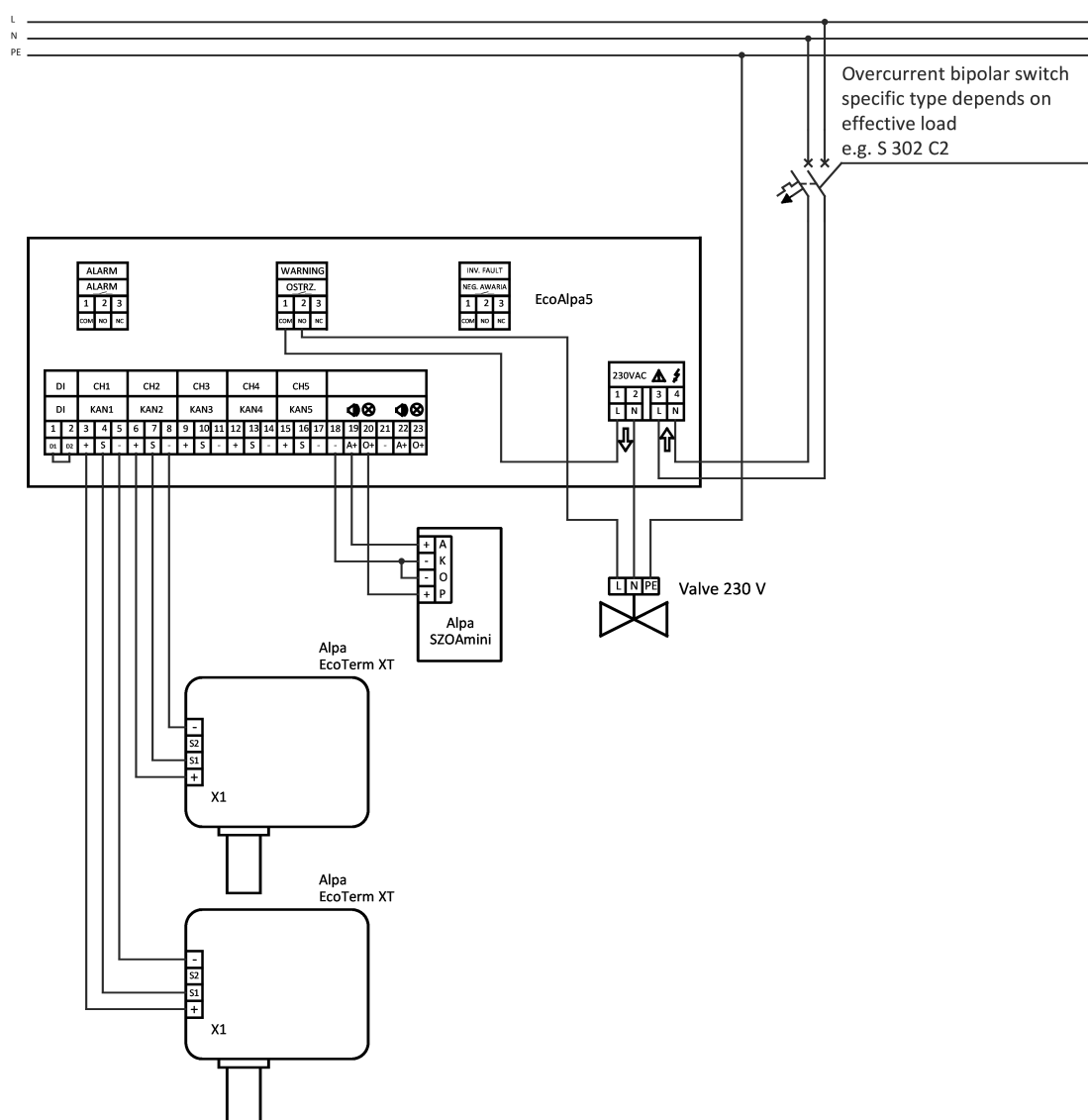
The active buzzer produces a sound signal. When the reason for the buzzer activation is no longer active, the buzzer is automatically switched off. The buzzer can also be muted by depressing the  button.

## 7 System architectures

The key schematic diagrams of gas safety systems designed on the base of the EcoAlpa5 Control unit are provided below. Detailed diagrams in editable formats can be downloaded from <http://www.doc.atestgaz.pl/AG/PROJ/PROJ-LIB-045.dwg>



### 7.1 System with 230 V valve (PW-090-V230-0)



**Figure 8: System with 230 V valve**



## 7.2 System with 12 V valve (PW-090-VL-X)

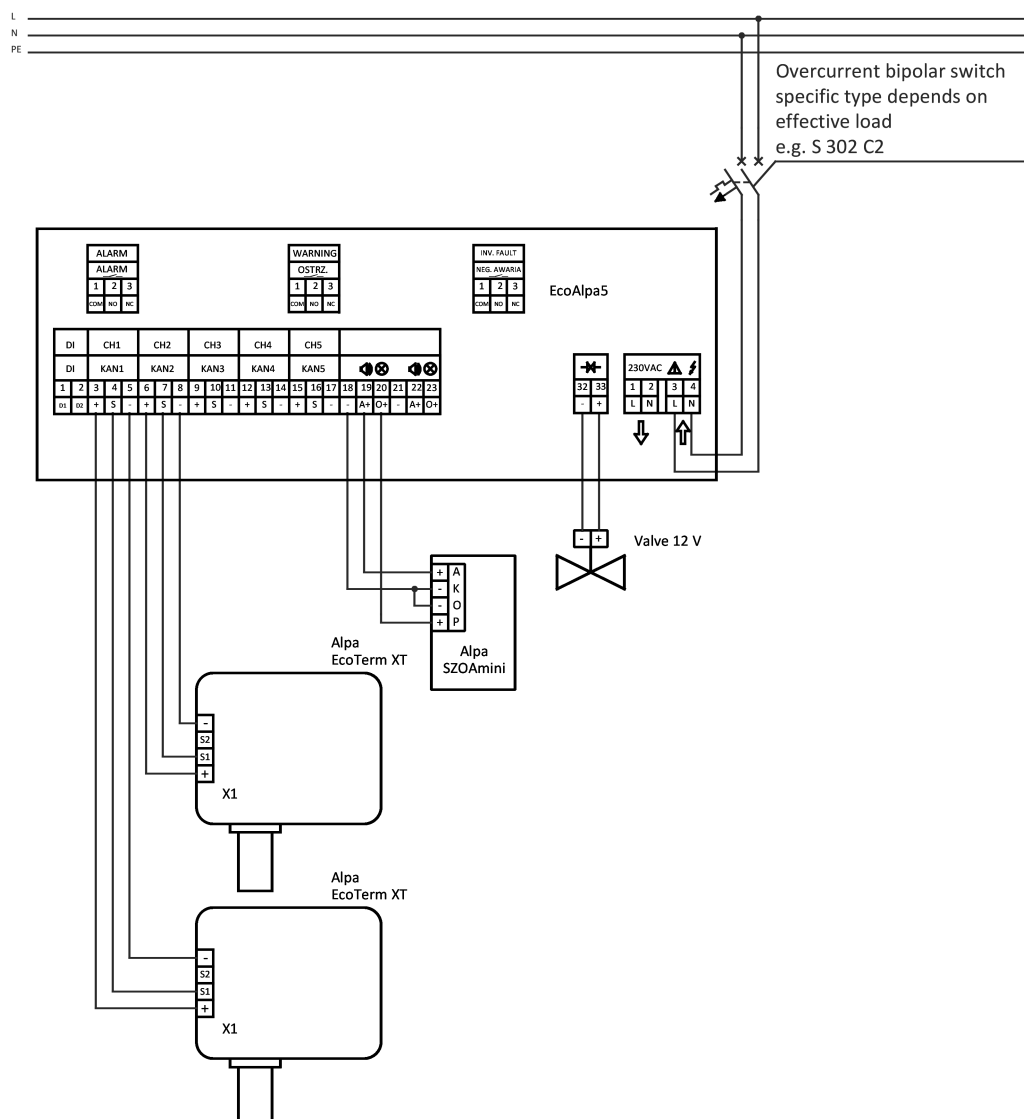


Figure 9: System with 12 V valve

### 7.3 System with 12 V valve connected via ZMZ (PW-090-VR-X)

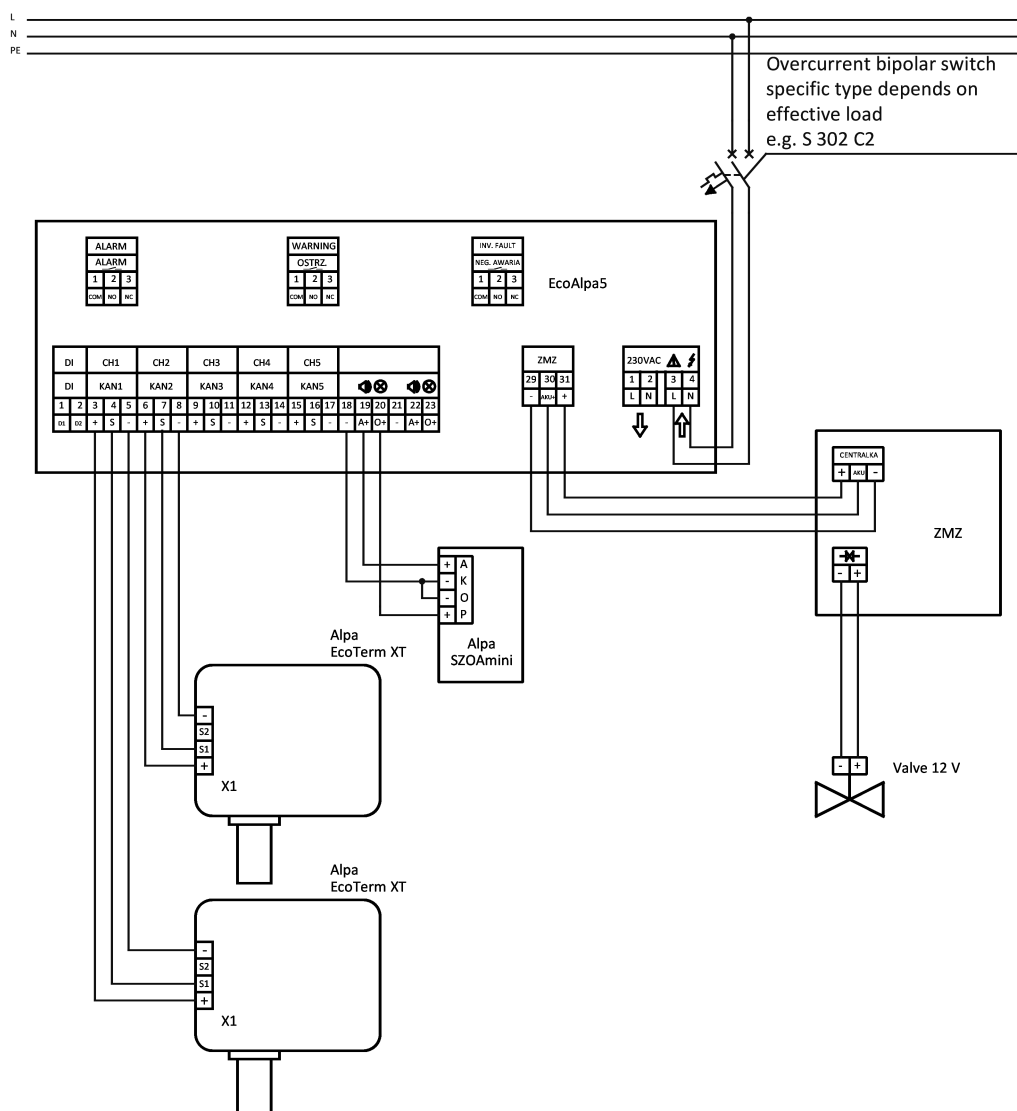


Figure 10: System with 12 V valve connected via ZMZ

## 8 Life cycle

### 8.1 Transportation

The device can be shipped in the same way as new equipment of that type. If the original package or another protecting means (e.g. corks) is unavailable the conveyed equipment must be secured against shocks, vibrations or moisture by means of adequate methods and material at the own responsibility of the sender.

Ambient conditions for transportations are specified in Table 14.

### 8.2 Installation

The module must be mounted in a flat, vertical wall with cable glands downwards, where the mounting position is shown in Figures 1 and 2 at a location that is easily accessible for authorized personnel but access of third persons should be restricted as much as possible. It is recommended to mount the device at the elevation that enables easy handling of the control unit.

Upon the cover of the EcoAlpa5 controller is removed it must be secured in a safe way by fixing it to the housing with two bolts, as it is shown in Figure Błąd: nie znaleziono źródła odwołania. After all installation work is completed, the cover must be tightly reinstalled with all four bolts.

If multi-core strands (commonly referred to as "cables") are used for connection, the ends of these strands shall be provided with terminal ferrules and lugs.



It is not allowed to combine two or more conductors with individual ferrules and lugs in a single terminal (details see Table 14).



It is not allowed to leave spare lengths of cables inside the device. Bare wires or wires surplus may lead to a hazard of electric shock or equipment damage.



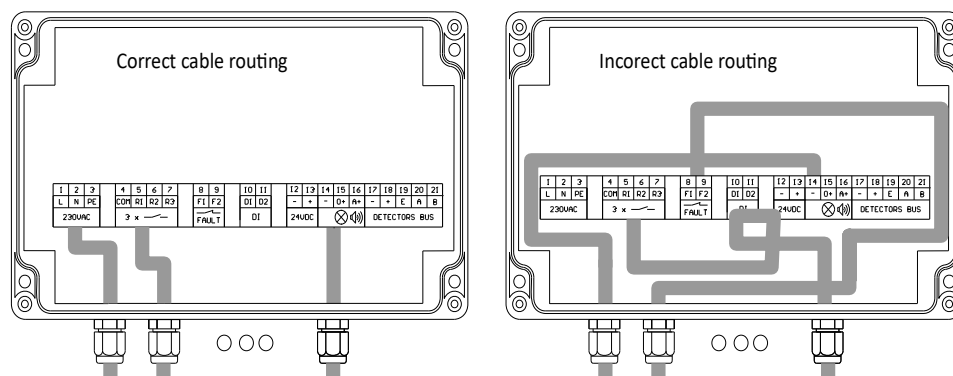
All cable cores must be terminated inside the device. Leaving of unterminated cores is not allowed.



Not used screw terminals must be tightly screwed.



Incorrect routing of cables may lead to compromising the device immunity to electromagnetic interferences.



**Figure 11: Example of cable connection to the device**

### 8.2.1 Connection of gas detector to a control unit

Detectors must be connected to a control unit by means of three-core cables. The recommended total resistance of all supplying cables should not exceed  $7 \Omega$  ( $3.5 \Omega$  per a single core). The connection can be made by means of any cable that meets the foregoing condition, but due to simplicity of installation it is recommended to use cables with as small cross-sections as possible, e.g.  $3 \times 0.5 \text{ mm}^2$ .

Maximum resistance of a single core [ $\Omega$ ]	Cross-section of a single core [ $\text{mm}^2$ ]	Maximum cable length [m]
7	0.5	75
	1	150
	1.5	250
	2.5	450

**Table 11: Selection of cables for connections between gas detectors and a control unit**

### 8.2.2 Connection of warning device

The EcoAlpa5 Control Unit is furnished with two identical outputs, connected in parallel and designed for connection of sound and light warning devices.

Such warning devices must be connected to a control unit by means of a three-core cable.

### 8.2.3 Connection of the ZMZ module to a control unit

The ZMZ module must be connected to the control unit by means of a three-core cable so that the total resistance of the cable is less or equal  $2 \Omega$  ( $1 \Omega$  per a single core). The table below presents how to select cross section of cables corresponding to the cable length.

Cross-section of a single core [ $\text{mm}^2$ ]	Maximum cable length [m]
1.0	50
1.5	80
2.5	130

**Table 12: Selection of cables for connections between a ZMZ and a control unit**

### 8.2.4 Valve connection

Designers of the wiring for connection of the valve controller to the shutoff valve must pay particular attention to appropriate selection of cables so that the maximum permissible resistance allowed for connection line is not exceeded:  $0.2 \Omega$  for valves with power  $\leq 72 \text{ W}$  or  $0.5 \Omega$  for valves with power  $\leq 36 \text{ W}$ .

Please keep in mind that the total length of conductors is twice more than the cable length. The table below explains how to select cross-section of cable cores and length of cables for valves of various types:




Cross-section of cable cores [ $\text{mm}^2$ ]	Cross-section of a cable (parallel connection of cores) [ $\text{mm}^2$ ]	Maximum length of the cable for valve with power $\leq 72 \text{ W}$ [m]	Maximum length of the cable for valve with power $\leq 36 \text{ W}$ [m]
1.5	2x1.0	not recommended	20
2.5	2x1.5	10	30
4	2x2.5	20	50
6	2x4	30	-


**Table 13: Selection of cables for connection between valve and a control unit**

## 8.3 Start up

Upon making sure that all connections within the system are correct operator is allowed to supply the power voltage from the 230 V mains.

All LED indicator should go on one for 1 s. (see Section 8.5.1) and then the unit starts regular operation, which is indicated in the following way:

-  OPERATION indicator is on for all communication channels of detectors,
-  OPERATION indicator is on (indicating the status of the control unit)
-  indicator designated as  $\sim$  is on.











For control units provided with the functionality of power backup (see Table 2) it is also necessary to check reliability of the backup voltage tripping – the battery  icon should blink after disconnection of power voltage.

Verification of the installation reliability is possible by initiation of a simple test that demonstrates correct operation of the system. The test is triggered by manual activation of an alarm reported by any gas detector connected to the control unit with the alarm signal duration not less than 30 seconds (the procedure of manual activation of gas alarms is described in manuals for specific gas detectors incorporated into the system). Upon alarm activation the control unit should indicate that gas concentration is exceeded for the specific channel, sound and light alarm devices should be activated, relays responsible for indication that detection threshold are exceeded should be closed and finally the shutoff valve should isolate supply of gas. After passing result of the test it is necessary to erase historical events from the module memory (see Section 5.6.1) and open the valve (see Section 8.5.2).

## 8.4 Configuration of the device / system





### 8.4.1 Number of detection channels

The number of detection channels (number of gas detectors) is adjusted by execution of the following procedure:


-  simultaneously depress and hold the both buttons  and  for 3 s. – the indicator of  button starts blinking,
-  release the buttons and depress the indicator ,
-  use the  button to select the number of channels (activation of a specific channel is confirmed by simultaneous illumination of all LED indicators for that channel),
-  depress  button and hold it for 3 seconds to confirm selection. All LED indicators go in for a while to confirm the settings. If the selection is not confirmed within 5 seconds the attempt the change settings is cancelled and the module moves to regular operation.

## 8.5 Troubleshooting

The EcoAlpa5 Control Unit offers basic self-test functions that enable:

-  monitoring of communication lines and detection of line breaks,
-  monitoring of voltages and content of internal memories,
-  operability tests of rechargeable batteries,
-  checks whether a shutoff valve with the 12 V control voltage and/or an additional ZMZ module are correctly connected,
  - failure (break) of the control line for transmission of shut off signals,
  - failure (break) of the line for connection of an additional ZMZ module.

### 8.5.1 Test of the user interface

The test is initiated by short depression of the  button, which triggers activation of all indicating LEDs of the device for about 1 second and horning of the internal buzzer (the same test is also launched after each power up of the device).





In case when any irregularity of the device operation is spotted please contact the device manufacturer.

### 8.5.2 Test of the shutoff valve

The control unit offers also the functionality to test the gas shutoff valve.

The need to run the test is indicated by slow blinking of the TEST indicator and is reminded after each three months from execution of a previous test.

The test is initiated by an operator from the level of the control unit. Prior to execution of the test please make sure that a short-term interruption in supply of gas is safe and harmless at the moment (observe the procedures effective for the entire system). To run the test please follow the following procedure:

-  depress the  button and hold it depressed for about five seconds, the TEST indicator light up and remain continuously on,
-  check whether the valve is reliably closed,
-  open the valve.

If any irregularity of the shutoff valve actuation to close the supply line is spotted please contact the device manufacturer or a service company.





Initiation of the shutoff valve test is infeasible when the control unit indicates failure of the valve itself (see Table 6) or its battery (see Table 7).

## 8.6 Scheduled maintenance

It is recommended to carry out a scheduled inspection and maintenance of the system after each three months of its operation.

The inspection should include:







-  visual inspection of all system components and each individual interconnection (gas lines and electric cabling),
-  run the shutoff valve test.

### 8.6.1 Replacement of consumables and fast wearing parts

Lifetime of consumables and fast wearing parts is listed in Table 14.

#### 8.6.1.1 Replacement of battery in EcoAlpa5 Control Unit

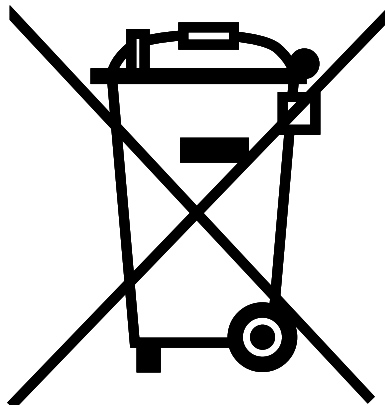
To replace the EcoAlpa5 battery follow the procedure below:

-  disconnect the control unit from power voltage,
-  remove the lid and secure using 2 screws (see Figure Błąd: nie znaleziono źródła odwołania),
-  undo bolts of the battery holder,
-  disconnect the battery,
-  replace the battery with a new one,
-  repeat the disassembling procedure in the reverse order.

### 8.6.2 Maintenance

The device does not require any specific maintenance except for cleaning the outer surface of the enclosure. The enclosure should be cleaned by means of a soft cloth moistened with water and a bit of a mild detergent.

### 8.7 Utilization



This symbol on a product or on its packaging indicates that the product must not be disposed of with other household waste. Instead, it is the user's responsibility to ensure disposal of waste equipment by handing it over to a designated collection point for the recycling of waste electrical and electronic equipment. The proper recycling of your waste equipment at the time of disposal will help to conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment. Information about relevant designated collection points can be obtained from the Local Authority, waste disposal companies and in the place of purchase. The equipment can also be returned to the manufacturer.

## 9 Technical specification

Power supply <ul style="list-style-type: none"> <li>Voltage <math>V_{CC}</math></li> <li><math>I_{CC}</math></li> </ul>	230 V ~ 0.75 A	
Environment <ul style="list-style-type: none"> <li>Ambient temperatures</li> <li>Humidity</li> <li>Pressure</li> </ul>	In operation  0 – 40°C 10 – 90% long term 0 – 99% short term 1013 ± 10% hPa	Storage  0 – 40°C 30 – 90% long term
IP	IP 65	
Parameters of the detector inputs <ul style="list-style-type: none"> <li>Number of input lines</li> <li>Input resistance</li> <li>Power voltage for detectors</li> <li>Maximum consumption of current by detectors</li> </ul>	1 – 5 120 Ω 10.5 – 15 V 800 mA	
Digital output parameters <ul style="list-style-type: none"> <li>Relay</li> </ul>	Floating contacts, NO/NC: AC1 <sup>2</sup> : 230 V ~ / 3 A DC1: 230 V ~ / 0.25 A DC1: 24 V ~ / 3A Not protected	
Control output for the shutoff valve <ul style="list-style-type: none"> <li>Range of load resistance /power</li> <li>Guaranteed limit of the shutoff voltage</li> <li>Maximum resistance of the power supply line</li> <li>Duration of the shutoff pulse</li> </ul>	PW-090-VL-X ≥ 4 Ω / ≤ 36 W PW-090-VR-X ≥ 2 Ω / ≤ 72 W 10.5 V See Section 8.2.4 0.5 s	
Control outputs for sound and visual warning devices <ul style="list-style-type: none"> <li>Power voltage for warning devices</li> <li>Maximum consumption of current by warning devices</li> </ul>	10.5 – 13.2 V 500 mA	
Parameters of the input for an external alarm signal	Connection via a potential-free contact Inactive for resistance below 10 Ω Active for resistance above 5000 Ω Minimum duration of the switchover pulse > 1s	
Integrated signalling equipment (optical)	LED controls	
Integrated signalling equipment (audible)	About 70 dB, distance 1 m	
Protection class	II	
Required protections <ul style="list-style-type: none"> <li>Power voltage</li> </ul>	Overcurrent fuse switch C2 in L and N lines	
Duration of operation with backup voltage	≤ 30 min	
Dimension	See Figure 1 and 2	
Cable glands (cable diameter range)	5 – 10 mm	



Acceptable cables	
<ul style="list-style-type: none"> <li>Relays output, valve 12 V</li> </ul>	0.5 – 4 mm <sup>2</sup> (cable lugs 2 x 1.5 mm <sup>2</sup> or 2 x 1 mm <sup>2</sup> should be used for double wires)
<ul style="list-style-type: none"> <li>Gas Detector, ZMZ, external alarm</li> </ul>	0.5 – 2,5 mm <sup>2</sup> (cable lugs 2 x 1 mm <sup>2</sup> or 2 x 0.75 mm <sup>2</sup> should be used for double wires)
<ul style="list-style-type: none"> <li>Power supply</li> </ul>	0.5 – 2,5 mm <sup>2</sup> (cable lugs 2 x 1 mm <sup>2</sup> or 2 x 0.75 mm <sup>2</sup> should be used for double wires)
Enclosure	ABS
Weight	1.2 – 3.5 kg
Consumables	See table 15, section 10
Mounting	4 holes for screw diameter 4 mm, holes spacing 235 mm x 160 mm

**Table 14: Technical specification**

## 10 List of consumables

No.	Consumables	Estimated average lifetime <sup>3</sup>	Manufacturer	Product code
{1}	Battery 12V 1.3 Ah (EcoAlpa5)	3 years	MW Power	MW 1.3 – 12
{2}	Fuse 3.15 A	-	-	Miniature slow fuse T3,15 A
{3}	Fuse 1 A	-	-	Miniature slow fuse T1 A
{4}	Battery 12V 5 Ah (ZMZ)	3 years	MW Power	MW 5 – 12
{5}	Fuse 10 A	-	-	Fuse, glass 20 x 5 mm, T10 A (slow fuse)

**Table 15: List of consumables**

## 11 Product marking

Available device versions are described in section 1.1.

## 12 Appendices

- [1] DEZG-127-ENG – EU Declaration of Conformity – EcoAlpa5





<sup>3</sup> Unless otherwise stated, when operating at a temperature of 25°C.

# EU Declaration of Conformity

Atest Gaz A. M. Pachole sp. j. declares with full responsibility, that the product:

(Product description)	(Trade name)	(Type identifier or Product code)
<b>Control Unit</b>	<b>EcoAlpa5</b>	<b>PW-090</b>

complies with the following Directives and Standards:

-  in relation to Directive 2014/30/EU – on the harmonisation of the laws of the Member States relating to electromagnetic compatibility:
  - EN 50270:2015
-  in relation to Directive 2014/35/EU – on the harmonisation of the laws of the Member States relating to the making available on the market of electrical equipment designed for use within certain voltage limits:
  - EN 60335-1:2012
-  in relation to directive 2011/65/EU – on the restriction of the use of certain hazardous substances in electrical and electronic equipment
  - EN IEC 63000:2018
-  other:
  - EN 60529:1991

This declaration of conformity is issued under the sole responsibility of the manufacturer.

This EU Declaration of Conformity becomes not valid in case of product change or rebuild without manufacturer's permission.

Gliwice, 14.03.2023

  
 (Name and Signature)  
**Managing Director**  
**Aleksander Pachole**





**Atest Gaz A. M. Pachole sp. j.**

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

**[www.atestgaz.pl/en](http://www.atestgaz.pl/en)**