

GP-ELK 2-Wire 4-20mA

Instruction and Maintenance Manual



geopal[®]

Bygmarken 19 • DK-3520 Farum
+45 4567 0600 • info@geopal.dk • www.geopal.dk



PENDING

ITS-1 23ATEX036745

DBI req. no 233.301

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2 Safety

Important:

- Please read this user's manual carefully before the GP-ELK is put into operation.
- To ensure a safe installation of the GP-ELK, it is important that the installation is carried out only by qualified personnel, familiar with the relevant national and international legislation, directives and standards applicable to the area of use.
- Always make sure that the supply voltage corresponds with the voltage indicated on the product label.

Warning:

- Do not remove the lid in a potentially explosive atmosphere.
- Avoid electrostatic charging. Clean with damp cloth only.

3 Declaration of conformity

The producer **Geopal System A/S**
Bygmarken 19
DK-3520 Farum

declares that the specified product

Type: GP-ELK
Name: Gas alarm detector

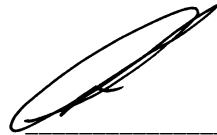
conforms to the following directives and standards:

Low Voltage Directive 2014/35/EU
EMC Directive 2014/30/EU

EN 61 000-6-2 (2019)
EN 61 000-6-4 (2019)
EN 50 270 (2015)

This declaration is given in compliance with article 7, subsection 1 of the EMC directive. For specification of the acceptable EMC level, refer to the electrical data of the product.

Farum, 1 June 2025



Christian Møller (*Producer's signature*)

3.1 ***System label***

Detector type: GP-ELK 1 pc.

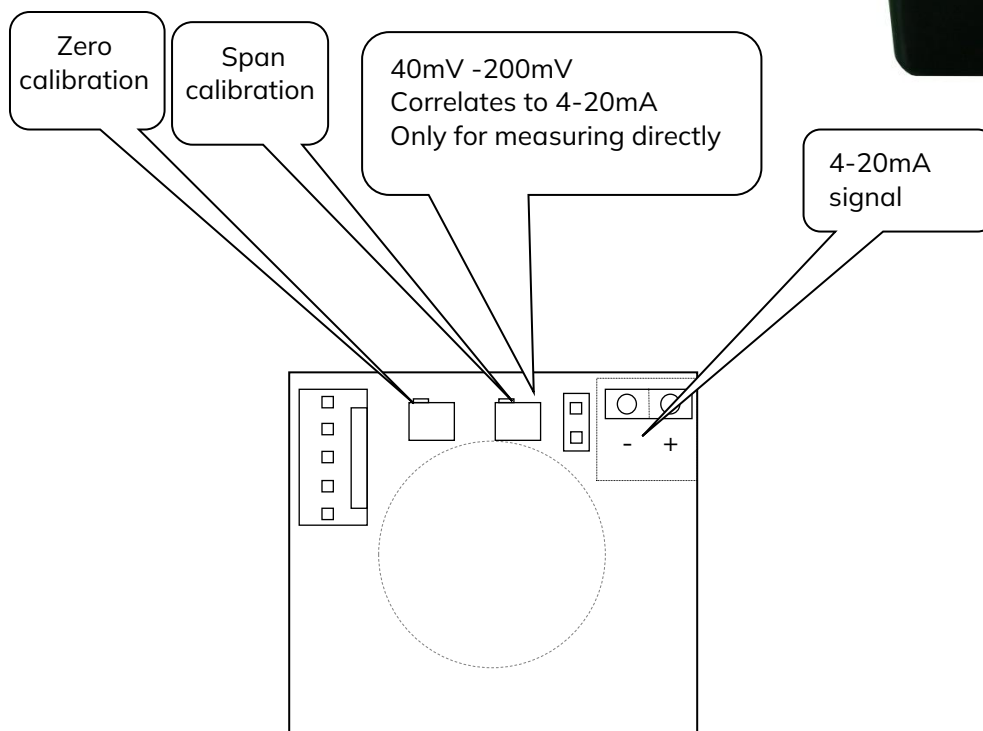
Sensor type, gas that needs to be detected (refrigerant, methane, hexane etc.),

Range (0-1000 ppm, 0-100 %LEL etc.)

Test gas needed for span calibration (type and concentration)

4 General description

GP-ELK can measure the concentration of a variety of gasses depending on the type of electrochemical sensor. See general in technical specification. For the specific detector actual gas is specified on the label and on the specific calibration certificate corresponding to the serial no. on the detector. Detector connection is a 2 wire 4-20 mA and must be supplied with 12-24V DC.



4.1 System overview

Application

Geopal GP-ELK is a stand-alone gas detector that can be connected directly with existing control and monitoring systems. The detector can also be connected to gas detector type GP-SA.

Geopal gas detector GP-ELK is designed to detect Harmful gases. The specific setting and calibration of the individual detector will be indicated on the relevant data sheet and/or the product label.

Construction

The detector has a 4-20 mA analog output.

The detector is encased in a sturdy plastic cabinet, encapsulating class IP56, DIN 40050.



4.2 *System variants*

Examples of gasses and proposal of detection ranges:

H ₂ O ₂	Hydrogen peroxide 0-5 ppm
H ₂ S	Hydrogen suophide 0-20 ppm
HCL	Hydrochloric acid 0-20 ppm
C ₂ H ₄	Ethylene 0-10 ppm
CH ₂ O	Formaldehyde 0-10 ppm
C ₂ H ₄ O	Ethylene oxide 0-5 ppm
Cl ₂	Chlorine 0-5 ppm
CO	Carbon Monoxide 0-300 ppm
NH ₃	Ammonia 0-200 ppm
NO ₂	Nitrogen Dioxides 0-20 ppm
O ₃	Ozone 0-5 ppm
PH ₃	Phosphine 0-5 ppm
O ₂	Oxygen 0-30 Vol.-%
NO	NitrogenOxide 0-100 ppm

5 Installation/assembly

5.1 Mounting

The detector is designed to be installed in places where gas leakage may occur. Installation should be done with regard to any extreme air movements in the area that might interfere with the detector. The detector should always be positioned so that the sensor is pointed downwards, i.e. with the cable gland on top.

The detector should be protected with a steel bar or similar type of guard, if it is mounted low and there is any risk that it may be hit by trucks or other vehicles.

The detector should never be covered by objects that might prevent the air movements from reaching the detector.

The detector should always, as far as possible, be placed in such a way that it is conveniently accessible for service and calibration.

5.2 Wiring

The detector is connected to the central unit by a plastic insulated 2-wire installation cable. A 2-wire installation with a supply voltage V_{CC} of 20-30 V DC is connected via a load resistance R_L to the terminals X1-1 and X1-2.

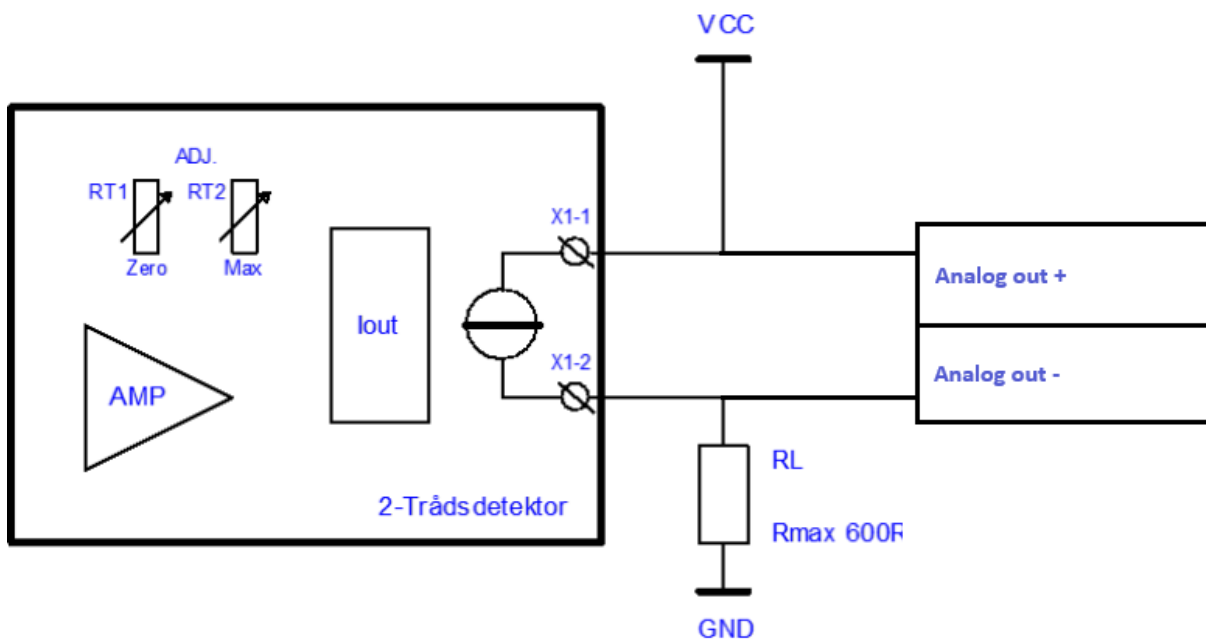


Figure 1 overview of full control board

6 Description of operation

All sensors are affected to a greater or lesser extent by the environment in which the sensor/detector is located. Also, all technical equipment can go wrong for various reasons. Therefore we recommend a test of the system regularly.

Under normal circumstances an annual calibration control is recommended. At exposed places a calibration control every six months is recommended. It is the responsibility of the system owner to see that the maintenance and calibration control is carried out.

7 Maintenance

7.1 Service Routine

It is recommended that the detector is tested and calibrated once a year. For many installations this is also a **legal** requirement. A complete calibration comprises a calibration to zero followed by a calibration with the selected gas (The following information is stated in the data-sheet / calibration certificate. The original certificate can be obtained from Geopal. serial no is required).

7.2 Bump Test

A bump test provides an indication, that the system is still operational. Here use gas that is half concentration of the full scale. Apply it to the detector and ensure that the alarms are activated. **Always** bump test detector after an activation of the high alarm.

7.3 Sensor Replacement

For a sensor replacement contact Geopal System:

Phone: +45 4567 0600

Email: info@geopal.dk



8 Warranty and Disposal

8.1 Warranty

Warranty coverage

Geopal System A/S provides a 1-year warranty, starting from the date of sale to the end-user. The warranty period must be documented with the original invoice or receipt. The warranty covers defects attributable to the materials and/or workmanship.

Warranty period

The warranty period begins at the date of delivery of the product to the first end-user. If the date of purchase cannot be documented, the warranty period will start at the date of production, as indicated on each product.

Warranty is void if production labels are altered, modified, or missing.

Warranty scope

The warranty does not cover labor costs for installation of replacement products or components, where Geopal System A/S chooses not to repair the product. The provision of replacement products or accessories does not extend the original warranty period. Geopal System A/S reserves the right to offer a similar replacement product or component if the original is no longer available at the time of the complaint.

Coverage pursuant to the warranty requires that the end-user can demonstrate that defects or damages have not directly or indirectly occurred because of:

- a) Faulty installation, i.e. installation contrary to the installation instructions or (in the absence of such instructions) contrary to good craftsmanship,
- b) Installation outside recommended installation areas,
- c) Misuse or abuse,
- d) Use of incompatible spare parts or accessories,
- e) Transportation, installation, or other type of handling,
- f) Product modifications,
- g) Other defects or damage not caused by material, production, or structural faults, if the preceding enumeration is not exhaustive.

Moreover, coverage pursuant to the warranty is conditional on the end-user demonstrating that defects or damages are not directly or indirectly attributable to failure (or that defects, damages and defects could not be prevented by) performing maintenance as prescribed in the instructions and maintenance manual.

Written complaints

To invoke this warranty, the end-user must submit a written complaint during the warranty period to Geopal System A/S or the retailer where the product was purchased. This must occur within two months of when the end-user discovered, or ought to have discovered, the defect.

Geopal System A/S shall then determine whether the product will be repaired, replaced or whether to refund the purchase price.



Repairs under the warranty

Unless Geopal System A/S provides otherwise, the end-user is responsible for the repair. The warranty covers the free supply of spare parts/materials necessary for the end-user's repair of the defect.

Replacement

Redelivery will occur by replacement free of charge of the old product with a new product of the same kind, type, and quality. If, at the time of the complaint, the product is no longer produced or is not produced in the exact same version, Geopal System A/S shall be entitled to exchange it for a similar product.

Transportation/shipping to and from Geopal System A/S and/or the dealer and any dismantling and reassembly of the product shall be agreed with Geopal System A/S before implementation, and if this occurs, the customer shall cover the costs.

The warranty does not cover the following

This warranty does not apply to products other than those listed under "Coverage of the warranty". For accessories, including pre-installed accessories, refer to the manufacturer's warranty, where available. Other Geopal System A/S products, regardless of whether these are pre-installed, are covered by the separate conditions stipulated in this warranty, including those relating to the warranty period referred to under "Warranty coverage".

Geopal System A/S accepts no liability for consequential damages, including consequential loss, or product liability other than what may follow from mandatory legislation.

Geopal System A/S accepts no liability for losses resulting directly or indirectly from circumstances over which Geopal System A/S has no control, including eg. strike, lockout, fire, war, blockades, import restrictions, political unrest, unusual natural occurrences, vandalism or other force majeure.

Geopal System A/S accepts no responsibility for products that are not produced by Geopal System A/S, regardless of whether they are sold or displayed together with the products listed under "Warranty coverage".

8.2 *Disposal of electrical and electronic products*

This product complies with the requirements for marking in the WEEE Directive (2002/96/EC).

The affixed label indicates that this electrical/electronic product must not be disposed of with household waste.

Product category

In relation to Annex 1A of the WEEE Directive 2002/96/EC, the product can be classified in Category 9: "Monitoring and control instruments".



Must not be disposed of via household waste!

More detailed information on environmentally safe disposal of electrical and electronic waste, such as waste equipment, or parts thereof, may be obtained by contacting your dealer. Look at Geopal System A/S website, as marked on the product.

9 Technical specifications

9.1 General Specifications

Model	GP-ELK
Gas	Dependent on Sensor
Measuring range	Examples of gasses and proposal of detection ranges: H₂O₂ Hydrogen peroxide 0-5 ppm H₂S Hydrogen sulphide 0-20 ppm HCl Hydrochloric acid 0-20 ppm C₂H₄ Ethylene 0-10 ppm CH₂O Formaldehyde 0-10 ppm C₂H₄O Ethylene oxide 0-5 ppm Cl₂ Chlorine 0-5 ppm CO Carbon Monoxide 0-300 ppm NH₃ Ammonia 0-200 ppm NO_x Nitrogen oxides 0-20 ppm O₃ Ozone 0-5 ppm PH₃ Phosphine 0-5 ppm O₂ Oxygen 0-30 Vol.-%
Long-term stability	< 5 % over 12 months
Repeat accuracy	< 5 %
Response time T ₉₀	< 50 seconds
Linearity	< 5 %
Start-up time after installation	30 minutes
Sensor Life expectancy	> 2 years of normal use, from time of manufacture CO & O₂ > 5 years of normal use, from time of manufacture
Supply voltage	12-28 Volt DC
Current	20 mA
Electric output signal	4-20 mA, max. load 600 Ω
Zero adjustment	By potentiometer
Sensitivity adjustment	By potentiometer
Pressure range	1 atm ± 10 %
Operating temperature Detector with built in heater (option)	-30 °C to +50 °C Temperature -40 °C to + 55 °C
Humidity	15-90 % rh, non-condensing

Material	PC (polycarbonate) POM (polyoxymethylene)
Dimensions box (w x h x l)	81 x 57,5 x 82 mm
Colour	Black
Weight	approx. 0,3 kg
Protection	IP56, DIN 40050

9.2 Approvals

Approvals	Low Voltage Directive 2014/35/EU EMC Directive 2014/30/EU EN 61 000-6-2 (2019) EN 61 000-6-4 (2019) EN 50 270 (2015)
Quality	ISO 9001:2015



10 Appendices

10.1 Mechanical drawings

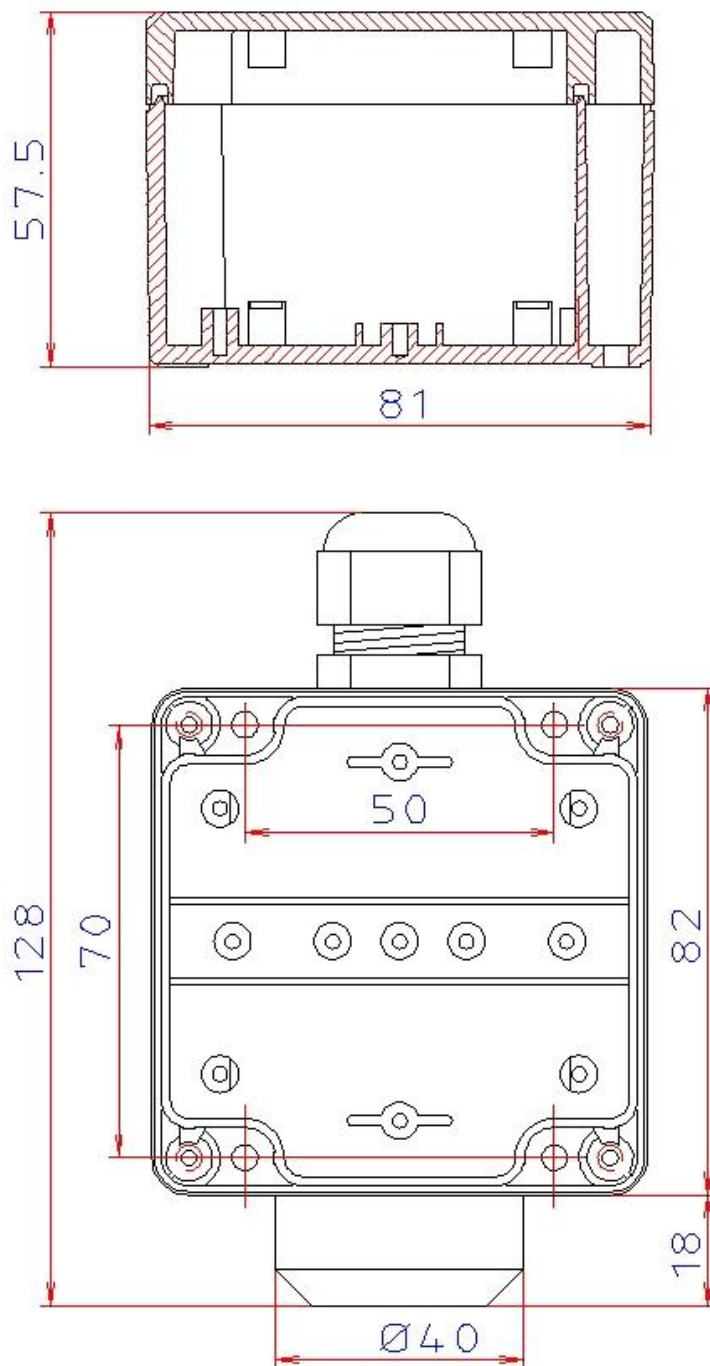


Figure 2 GP-ELK dimensions