



User Manual




GPL 3000 


gas detector


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
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Application

The gas detector GPL 3000  is designed to search for and locate gas leaks in pipes in interior and exterior areas.

The GPL 3000  is the result of our many years of experience combined with the newest technology.

Thanks to the very simple operation of the GPL 3000 , anybody may locate gas leaks without special instruction .

The size and design of the GPL 3000  make it the ideal instrument for fitters and emergency repair teams.


The movable sensor head permits measurement in places difficult to reach.

**Unless mentioned otherwise, the following units refer to methane (CH₄).
Liquefied petroleum gas usually consists of more than 90% methane.**

**Please take in account the corresponding
explosion proof class,

see the Declaration of conformity

the admitted areas of measurement and gas to measure.**

The following application fields can be covered with the GPL 3000 :

Gas type	Ignition temperature in °C	Temperature class / Gas group
Acetone	535	T1 / IIA
Ethane	515	T1 / IIA
Methane	537	T1 / IIA
Propane	470	T1 / IIA
Hydrogen	560	T1 / IIC

see EN 61779 Table A.1



IMPORTANT: Observe the yearly calibration cycle

Unit ppm, Vol.%

The unit ppm refers to volume:

1 ppm = 1 cm³ 100% gas distributed in 1 m³ of surrounding air

10 ppm = 10 cm³ 100% gas distributed in 1 m³ of surrounding air

The unit Vol.%:

0,1 Vol.% = 1 dm³ 100% gas distributed in 1 m³ of surrounding air

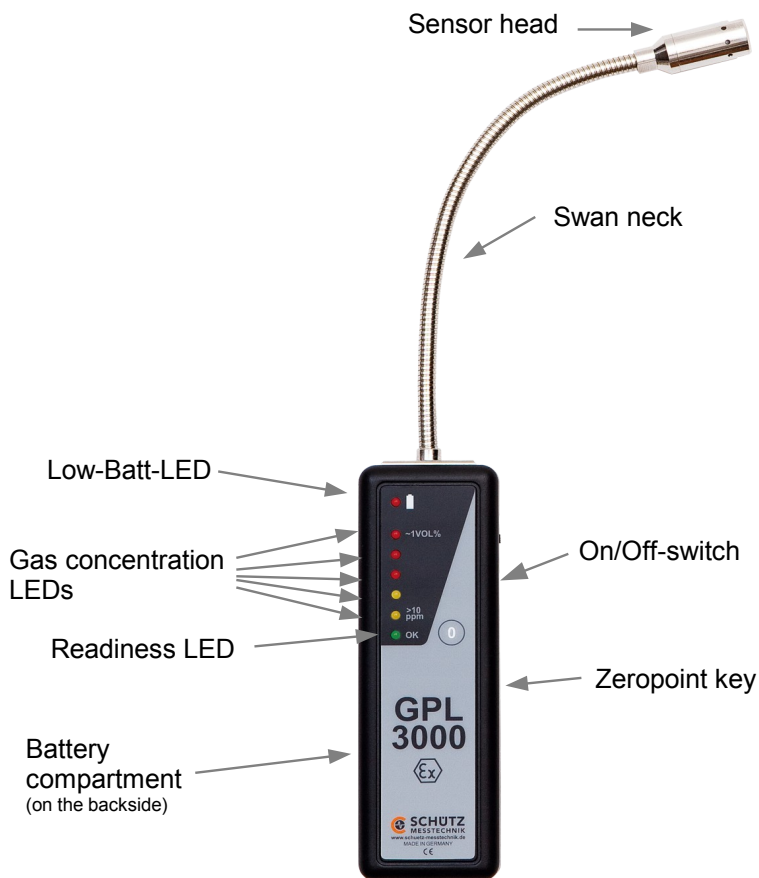
1 Vol.% = 10 dm³ % gas distributed in 1 m³ of surrounding air

Conversion factors:

dm ³		cm ³		m ³		Litre
0,01	=	10	=	0,00001	=	1/100
0,1	=	100	=	0,0001	=	1/10
1	=	1.000	=	0,001	=	1
10	=	10.000	=	0,01	=	10
100	=	100.000	=	0,1	=	100
1000	=	1.000.000	=	1	=	1000

ppm		Vol.%		CH ₄ in 1m ³ air
1	=	0,0001	=	1 cm ³
10	=	0,001	=	10 cm ³
100	=	0,01	=	100 cm ³
1.000	=	0,1	=	1 dm ³
10.000	=	1	=	10 dm ³
100.000	=	10	=	100 dm ³
1.000.000	=	100	=	1 m ³

Operation elements GPL 3000



Gas Sensor

The sensor head contains a sensitive gas sensor, designed and calibrated for methane. The sensor will also react to other gases such as propane, hydrogen and gasoline vapours.

The sensor is sensible to dirt and moisture. Avoid exposing the sensor to dirt or moisture. Never stick the sensor head into the soil or into a liquid.

Gas sensors which are stored over a longer period of time lose their functioning point. This is due to “pollution” (binding of oxygen) on the sensor surface and can not be avoided with putting them to work. For this reason it is advised to put the instrument to work regularly (every 2 to 3 days) and let it run for about 15 minutes. This way you don't risk having to wait when you want to use the instrument. A measurement signal indicates the end of the warm-up time, which may take up to 45 minutes.

To eliminate dust on or inside the sensor cover, unscrew it and clean it with compressed air as shown in the following illustration.



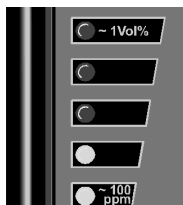
Important Information off sensor-element!


The sensor is highly corrosive environment to concentration of H_2S hydrogen sulphide, SO_x sulphur oxide, Cl_2 chlorine, HCL hydrogen chloride. This leading to corrosion or break of the wires or heater material.

Furthermore the sensor may not be detected with alkaline material, salt-water or water. This determine very high drift performance of the sensor (zero point stability).

Dampness sensor skills under effect of frost breaking and destroyed.

Measurement range

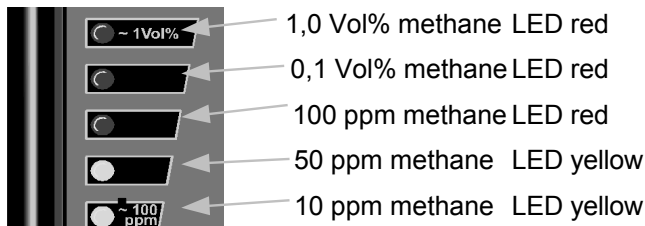


The five gas concentration LEDs of the GPL 3000  cover a measurement range of approx. 10ppm up to approx. 1Vol%. With increasing concentration the frequency of the acoustic signal increases until it emits a constant tone when reaching approx. 1Vol%.

When measuring, keep in mind that methane is lighter than air, causing it to rise. Always measure above the pipe you are checking or above the suspected leak.

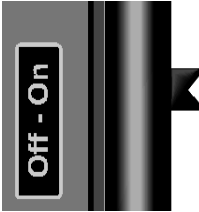
LED allocation


The 5 LEDs are allocated to the following gas concentrations:



If the instrument is factory calibrated for another gas type, the values refer to this gas.

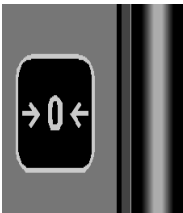
Turning on the GPL 3000




As soon as you turn on the GPL 3000  using the On/Off switch, the warm-up period starts. The sensor requires this time to reach its operating temperature. The warm-up period ends when the readiness LED lights up. Also, in operation state a short signal will sound approx. every 10 seconds („confidence beep“), indicating that the instrument is ready to measure.


Now you can begin measuring.

Zero point



You may set the zero point manually by pressing the zero point key, setting the present measured value as zero point.

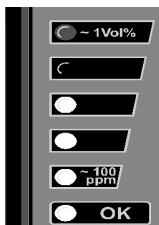
If the GPL 3000  should measure a value below the current zero point, the zero point will be updated automatically. The readiness LED will signal this by flashing.

The range which the GPL 3000  accepts as zero point is limited. Therefore you can not „suppress“ a concentration of 1Vol% by pressing the zero point key.


Special functions

Disconnect alarm tone


Keep the zero point key pressed for some time. After a while (approx. 2 seconds) the first red gas concentration LED will light up. Release the zero point key, the alarm sound is disconnected.

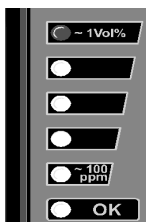


To activate the alarm sound again, repeat the procedure described above.

If you switch the GPL 3000  off using the On/Off switch and then turn it on again, the alarm sound is automatically activated.


Disconnect the confidence tone

The confidence beep or readiness sound of the GPL 3000  is telling you that the instrument is turned on and ready to measure. If you wish you can disconnect this confidence beep.



Keep the zero point key pressed for some time. After a while (approx. 2 seconds) the first red gas concentration LED will light up. Now keep the zero point key pressed. After another 2 seconds the second red gas concentration LED will light up. Now release the zero point key, the confidence beep is disabled.


To turn the confidence beep back on, repeat the same procedure.

If you switch the GPL 3000  off using the On/Off switch and then turn it on again, the confidence beep is automatically activated.

Energy supply



Please observe: Batteries or accumulators may only be changed outside of areas with potentially explosive atmosphere.

The GPL 3000  is energized by two AA (R6) batteries. You may use regular batteries or rechargeable accumulators. To change the batteries, open the battery compartment with the supplied Allen wrench.



The operation time is up to 10 hours.

When the Low Batt LED is lit, it is indicating that the batteries are almost empty. You should change them.

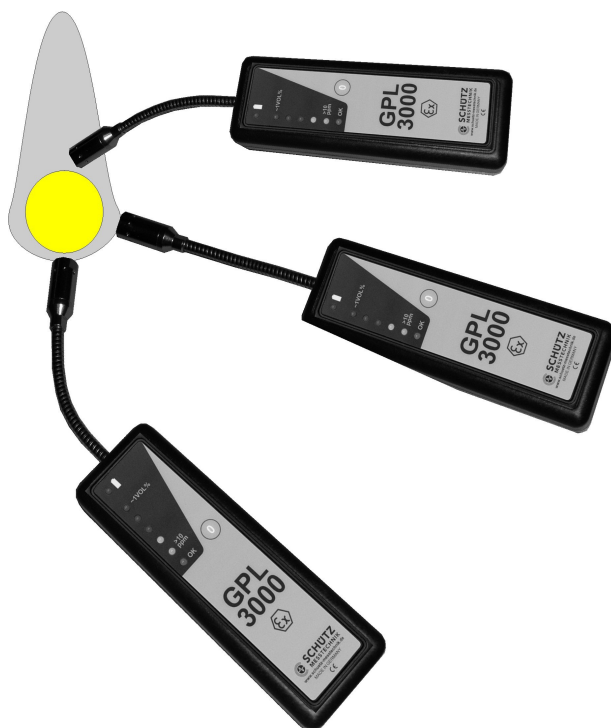


Please observe: Only the batteries or accumulators indicated by the manufacturer may be used. Using any other batteries or accumulators will void de explosion proof certification.

Practical hints

Checking natural gas pipes

Hereafter we describe the verification of natural gas mains. Since the main component of natural gas is methane, which is lighter than air, the pipes shall be verified from above.



Checking propane pipes

In contrast to methane, propane is heavier than air. For this reason measurement should be done from underneath, as shown in the illustration, in order to obtain the best measurement results.



Declaration of conformity

Before using this instrument, you must read these instructions carefully. The instrument may only be used for the herein-described purpose. Any references to laws, regulations and standards are based on German legislation.

The design and construction of this instrument, in the version put in circulation by us, complies with the EC Standard on electromagnetic compatibility (EMC).

Name of instrument: GPL 3000 

Applicable EC standard: EC Directive on Electromagnetic Compatibility (2004/108/EG)

Applied standards: DIN EN 61000-6-3
Interfering transmissions in residential, commercial, small business areas
DIN EN 61000-6-2
Resistance against interference in industrial areas
DIN EN 60079-0
Electrical apparatus for potentially explosive atmospheres, general requirements
DIN EN 60079-11
Electrical apparatus for potentially explosive atmospheres, intrinsic safety "i"

Ex-proof: x Area 1 2G
Ex ib IIC T1
ATEX Nb: SEV 04 ATEX 0143

Any unauthorised modification of the instrument invalidates this declaration.

Lahr, 31.12.2005

Schütz GmbH Messtechnik

Inspection sheet

For testing the function and display accuracy of GPD 3000, there is an inspection sheet available.

Please contact www.schuetz-messtechnik.de on the internet.

Terms of use

Please observe the operation manual!

For correct use of this instrument, it is important to read the operating instructions. The instrument may only be used for the described purposes.

As far as rules, regulations, laws or other legal provisions concerning the use of this instrument are mentioned, they are based on German law. This instrument complies with the European guidelines for electromagnetic compatibility (EMC).

Maintenance

Maintenance and repair work in this instrument may only be done by the manufacturer or his authorised technicians. Principally only SCHÜTZ – MESSTECHNIK spare parts should be used.

Warranty

The instrument has a 24-month warranty from the date of purchase.

In case of damaged screw fasteners, the warranty is voided.

The warranty does not include wear and tear materials (sensors and battery).

Liability for function and damages

The liability passes over to the owner or operator of the instrument in all cases in where maintenance or servicing is performed by unauthorized personnel, or in case the instrument is not used for the purpose, for which it was designed.

The sensor head should not come in touch with moisture or dirt, since this would damage it. In this case, the warranty shall be void. The instrument may not be used to evaluate a gas concentration, as its sole function is to locate gas accumulations.

Accessories

The following items can be ordered as accessories for the GPD 3000

Reference	Designation
232.010	GasPen sensor protection cap Separator for sensor head
200.233	Battery AA (R6) battery 1,5V
201.186	Extraction valve Extraction valve with test cap for GasPen
200.609	Aluminium can with calibration gas 1 Litre 1 Vol% CH ₄
200.610	Aluminium can with calibration gas 1 Litre 12 bar 2,2 Vol% CH ₄

Control certification EC type examination certificate





EC-Type Examination Certificate

(1) **Equipment or protective system intended for use in potentially explosive atmospheres - Directive 94/9/EC**

(2) **Examination Certificate Number**
SEV 04 ATEX 0143

(3) **Equipment:**

Gas detector; Type,	GasPen2 respectively GasPen light respectively GasPen digital
Pressure measuring device; Type,	P-Pen respectively VR-Pen respectively HP-Pen

(4) **Manufacturer:** Schütz GmbH, Messtechnik

(5) **Address:** Im Dornschlag 6, DE-77933 Lahr

(6) The equipment and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

(7) Electrosuisse SEV as notified body No. 1258 in accordance with article 9 of the Council Directive of the European Communities of 23 March 1994 (94/9/EC), certifies that this equipment has been found to comply with the essential health and safety requirements relating to the design and construction of equipment or protective systems intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The results of the examination are recorded in confidential report No. 04-IK-0011.02 incl. extension 01 to extension 05

(8) Compliance with the essential health and safety requirements has been assured by compliance with:

EN 1127-1:2007	EN 60079-0:2006	EN 60079-1:2007	EN 60079-11:2007
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(9) If the sign «X» is placed after the certificate number, it indicates that the equipment or protective system is subject to special conditions for safe use specified in the schedule to this certificate.

(10) This examination certificate relates only to design and construction of the specified equipment in accordance to the directive 94/9/EC. Further requirements of this directive apply to the manufacturing process and the placing on the market of the equipment.

(11) The marking of the equipment shall include the following:

 II 2G	Ex ib IIC T1	respectively	 II 2G	Ex ib d IIC T3	respectively
 II 2G	Ex ib IIC T3				

Electrosuisse
Certification Body ATEX

Martin Plüss
Product Certification



Fehraltorf, 2010-01-08

Replaces certificates from
2006-10-30
Extension 5: Update of standards

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SEV Verband für Elektro-, Energie- und Informationstechnik. SEV Association pour électrotechnique, les technologies de l'énergie et de l'informatique SEV Associazione per elettrotecnica, la tecnica energetica e l'informatica SEV Association for Electrical Engineering, Power and Information Technologies	Luppenstrasse 1 CH-8320 Fehraltorf Tel. +41 (0)44 956 11 11 Fax +41 (0)44 956 11 22 info@electrosuisse.ch www.electrosuisse.ch
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Appendix

(13)

(14)

EC-Type Examination Certificate SEV 04 ATEX 0143

(15) Description of the equipment

The devices described in the following basically have the same construction.

The Type GasPen2, GasPen light, or GasPen digital gas detectors are universally applicable gas detectors used to detect points of gas leakage.

The sensor is designed as a semiconductor sensor that reacts to hydrocarbons. The measuring signal is processed in the device and then displayed in various ways. An acoustic signal is emitted according to the gas concentration.

The Type P-Pen respectively VR-Pen respectively HP-Pen pressure measuring device is a universally applicable pressure measuring device used for testing the pressure of gas lines, compensating pressure controllers, measuring flows using differential pressure, and so on.

The sensor is designed as a resistance bridge circuit in silicon piezo-resistive technology. The measuring signal is processed in the device and then displayed on an LCD.

The batteries are stored in the battery compartment integrated into the device housing.

Ratings

Power supply
for GasPen2

Supply from two rechargeable batteries of the following type connected in series:

SANYO KR-1100AAU

$U_{\text{Batt}} \leq 3,3 \text{ V}$

Power supply
for GasPen light
and GasPen digital
and P-Pen respectively
VR-Pen respectively
HP-Pen as well

Supply from two batteries respectively from two rechargeable batteries of the following type connected in series:

CAMELION LR6 and SANYO KR-1100AAU

$U_{\text{Batt}} \leq 3,3 \text{ V}$

Notes

1. According to RL 94/9/EC (ATEX 95) Appendix I, the GasPen2 respectively GasPen light respectively GasPen digital detector with the type of protection "Ex ib" is a device of equipment group II, category 2G, which according to RL 99/92/EC (ATEX 137) can be used in zones 1 and 2 as well as gas groups IIA, IIB and IIC, which are potentially explosive due to combustible substances in temperature class T1.
2. According to RL 94/9/EC (ATEX 95) Appendix I, the GasPen2 gas detector with the type of protection "Ex ib d" is a device of equipment group II, category 2G, which according to RL 99/92/EC (ATEX 137) can be used in zones 1 and 2 as well as gas groups IIA, IIB and IIC, which are potentially explosive due to combustible substances in temperature classes T1 to T3.
3. According to RL 94/9/EC (ATEX 95) Appendix I, The P-Pen respectively VR-Pen respectively HP-Pen pressure measuring device with the type of protection "Ex ib" is a device of equipment group II, category 2G, which according to RL 99/92/EC (ATEX 137) can be used in zones 1 and 2 as well as gas groups IIA, IIB and IIC, which are potentially explosive due to combustible substances in temperature classes T1 to T3.

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Appendix to EC-Type Examination Certificate SEV 04 ATEX 0143

4. The permissible ambient temperature range is -20°C to $+40^{\circ}\text{C}$.
 5. Only the batteries in the specified ratings shall be used.
 6. Warning information (Applies only to the equipment GasPeri2)
"Cleaning only with a moist towel".
 7. For use/installation, the requirements of EN 60079-14 must be observed.
- (16) Test Report
04-IK-0011.02 incl. extension 01 to extension 05
- (17) Special requirements
none
- (18) Fundamental essential health and safety requirements
Fulfilled by the standards applied

Electrosuisse
Certification Body ATEX

Martin Plüss
Product Certification




Fehraltorf, 2010-01-08

Replaces certificates from
2006-10-30
Extension 5: Update of standards

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Technical data

Dimensions:	approx. 25 x 45 x140mm
Swan neck:	approx. 180 mm
Weight:	approx. 190g (including battery)
Ex-proof:	see the Declaration of conformity
Power supply:	2 AA batteries Camelion Alkaline PLUS AA (supplied)
Measurement range:	10 ppm up to 1 Vol. %
Resolution:	5 stages
Operation time:	min. 10 hours <i>The use of low quality batteries or accumulators drastically reduces the operation time.</i>
Working temperature:	0°C up to +40°C
Storage temperature:	-10°C up to +50°C
Manufacturer:	Schütz GmbH Messtechnik

Supply: GPL 3000 , plastic carrying case, 2 AA batteries, operation manual and certificate




Service:

Schütz GmbH Messtechnik
Im Dornschlag 6
D-77933 Lahr, Schwarzwald
Tel.: +49 (0) 7821 3280 100
Fax.: +49 (0) 7821 3280 222
e-mail: info@schuetz-messtechnik.de

International Service:

please visit: <http://www.schuetz-messtechnik.de>

Test-Report

		test protocol for GPL 3000 (measuring gas: methane)		serial number:	
1. cycle G465	condition of equipment	target	actual		
1.1 week	optical condition of equipm.	ok			
1.2 week	LED	ok			
1.3 week	tone	ok			
1.4 week	condition of battery	ok			
1.5 week	swan neck	ok			
1.6 week	sensor head	ok			
2. controls	controls	target	actual		
2.1 week	environmental air	no flashing			
2.2	measuring gas 10 ppm CH ₄	LED1			
2.3	measuring gas 100 ppm CH ₄	LED2			
2.4	measuring gas 1000 ppm CH ₄	LED4			
2.5 week	measuring gas 1 Vol.% CH ₄	LED6 display OK			
3. documentation	documentation				
3.1	date				
3.2	signature				

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