

Quick Reference Guide

Measurement method

Electrochemical measurement cell (EMC)

Environmental conditions (operation)

Temperature: -20 to +45 °C/+55 °C

Humidity: 5 to 95 % RH

Air pressure: 70 to 130 kPa

Operating time

9 months (10 hours of use/work day) or 90 days (24/7)*

*Using unleaded O₂ sensors will decrease the operating time.

Power supply

Interchangeable alkaline battery (1x AA)

May only be replaced with the battery specified in the operation manual!

Battery type

INDUSTRIAL by DURACELL ID1500 AA (LR6)

DURACELL Procell PC1500 LR6 AA

Housing

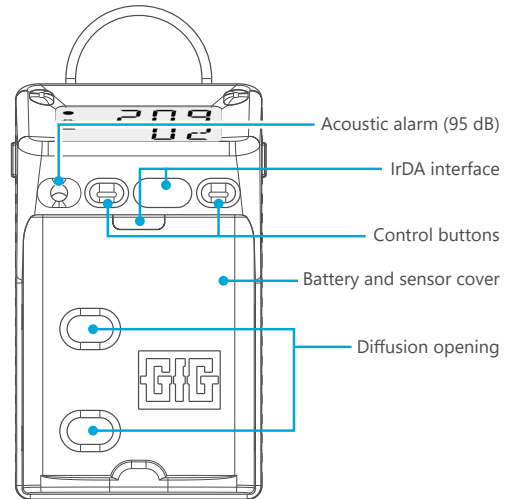
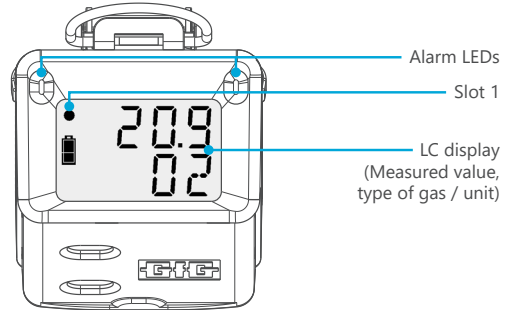
Material: Polycarbonate / rubberized plastic

Dimensions: 49 x 84 x 32 mm (W x H x D)

Weight: 115 to 125 g

(including sensors, battery and fastening clip)

IP rating: IP54



Do not open the device in potentially explosive areas!

Replace the battery outside of potentially explosive areas only!

Do not use solvents or cleaning agents for cleaning!

ATEX certification

Micro 5 G222E

⊕ I M1 Ex ia I Ma

-20 °C ≤ Ta ≤ +55 °C

⊕ II 1G Ex ia IIC T3 Ga

-20 °C ≤ Ta ≤ +55 °C

⊕ II 1G Ex ia IIC T4 Ga

-20 °C ≤ Ta ≤ +45 °C

Turning on the device

Briefly press the right button.

Self-test / warm-up phase

As soon as the device is turned on, the two red LEDs above the display will flash to indicate the boot process and the self-tests have been started. The parameters of the inserted sensors (gas, measuring range, alarm thresholds, STEL, TWA) are shown during this process. A warm-up timer will indicate the remaining duration of the starting phase. The device will give an acoustic signal when the warm-up phase is completed.

Measuring mode

After the self-test is completed, the MICRO 5 will switch to measuring mode. The LC display will show the measured value as well as the type of gas or measuring range (alternating). If you equipped two sensors, the display will alternate between them. The MICRO 5 is a gas detector for 1 or 2 gases. If the measured value of the sensor in slot 1 is currently displayed, the device will indicate that by showing a ● in the upper left corner of the screen. If the measured value of the sensor in slot 2 is displayed, this dot is not visible.

Turning off the device

To turn off the device, hold down the right button for the duration of the initiated acoustic shut-down countdown.

Type of alarm	Sensors	Alarm level	Description
Current value (AL)	<ul style="list-style-type: none"> » Oxygen » Combustible gases » Toxic gases 	3 3 2	Are activated immediately when the current gas concentration exceeds or falls below (O ₂) a set value. The current value alarms can be set individually.
Short-term exposure limit (STEL)	» Toxic gases	1	The short-term exposure value (STEL) indicates the mean value of the past 15 minutes.
Time-weighted average (TWA)	» Toxic gases	1	The time weighted average (TWA) monitors the exposure to gas over the past 8 hours.

Rotating the display by 180°

Briefly press the left and right buttons simultaneously to rotate the display by 180°. This will make it easier to read when wearing the device on your person.

Charging status of the battery

Briefly press the right button to make the device display the exact charging status of the battery (in percent). Additionally, the battery icon will inform you about the approximate charging status:



> 50 %



<= 50 % and > 15 %

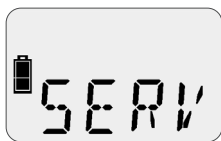


<= 15 % and > 5 %



<= 5 %

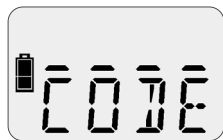
Service menu



The service menu is only accessible via an access code. This prevents important functions from being changed accidentally or by unauthorized people. All alarms are deactivated while in service mode.

Press the left button for more than 1 second to activate the service menu. Enter four-digit access code:

Access code



- » Briefly pressing the left button = value + 1
- » Holding down the left button = value - 1
- » Briefly pressing the right button = Move one digit to the right / confirm
- » Holding down right button = Move one digit the left

If you enter an incorrect code, the notification **WRNG** (wrong) will be displayed and the device switches back to measuring mode.

Information on the setting possibilities, the adjustment and calibration can be found in the operation manual.

Typical Sensors with their measuring ranges and alarm thresholds

Type of gas	H ₂	O ₂	CO	H ₂ S	NO	NH ₃	HCN	HCl	C ₂ H ₄ O	ClO ₂	COCl ₂	PH ₃	SiH ₄	HF	Cl ₂	O ₃	NO ₂	SO ₂
Measuring range	4.0 Vol.-%	25.0 Vol.-%	500 ppm	100 ppm	100 ppm	200 ppm	50 ppm	30 ppm	20 ppm	2.0 ppm	2.0 ppm	10.0 ppm	20 ppm	10.0 ppm	10.0 ppm	1.0 ppm	30 ppm	10.0 ppm
Alarm A1	0.4	19.0	30	5	2.5	20	5	5	2	0.2	0.1	0.3	5	1.0	0.5	0.1	2	1.0
Alarm A2	0.6	17.0	60	10	5.0	40	10	10	4	0.4	0.2	0.4	10	2.0	1.0	0.2	4	2.0
Alarm A3	0.8	23.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Test gas	1.0	20.9	200	50	50	100	50	10	20	1.0	1.0	5.0	5	10.0	5.0	0.7	20	10.0

More gases and measuring ranges on request.

GfG – Gesellschaft für Gerätebau mbH

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G222E

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Edited: 13.04.2018 Amended:27.08.2021

GfG Gesellschaft für Gerätebau mbH develops produces and sells gas sensors and gas warning devices which are subject to a **quality management system** as per DIN EN ISO 9001.

Subject to supervision by means of a **quality system**, surveilled by the notified body, DEKRA Testing and Certification (0158), is the production of electrical apparatus of instrumentation Group I and II, categories M1, M2, 1G and 2G for gas sensors, gas detectors, gas warning systems in types of protection flameproof enclosures, increased safety, encapsulation and intrinsic safety, as well as their measuring function.

The portable detector **G222E** complies with directive **2014/34/EU** (ATEX) for devices and protective systems for proper use in potentially explosive atmospheres, directive **2014/30/EU** for electromagnetic compatibility and with directive **2011/65/EU** (RoHS) on the restriction of the use of certain hazardous substances in electrical and electronic equipment.

For electrical explosion protection**Labelling G222E:**

BVS 18 ATEX E 027 X

⊕ II **1G** Ex ia IIC T4/T3 Ga⊕ I **M1** Ex ia I MaThe directive 2014/34/EU is complied considering the following standards:

Explosive atmospheres

- General requirements

EN 60079-0 : 2018

- Intrinsic safety "i"

EN 60079-11 : 2012

The rating of the danger of ignition was done and documented. The EU-Type Examination Certificate was issued by the notified body with ID number 0158 (DEKRA Testing and Certification, Dinnendahlstraße 9, D-44809 Bochum).

The directive 2014/30/EU is complied considering the following standard:

- Electromagnetic compatibility - Electrical apparatus for the detection and measurement of combustible gases, toxic gases or oxygen

EN 50270 : 2015

Emitted interference

Type class 1

Interference immunity

Type class 2


The EMC test laboratory AMETEK CTS Germany GmbH at Kamen has tested and certified the electromagnetic compatibility.

The directive 2011/65/EU is complied considering the following standard:

- Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances

EN 50581 : 2012

Dortmund, 27 August 2021


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B. Siebrecht
QMB

Translation

EU-Type Examination Certificate

Equipment intended for use in potentially explosive atmospheres
Directive 2014/34/EU

EU-Type Examination Certificate Number: **BVS 18 ATEX E 027 X**

Product: **Gas detector type G222E**

Manufacturer: **GfG Gesellschaft für Gerätebau mbH**

Address: **Klönnestr. 99, 44143 Dortmund, Germany**

This product and any acceptable variations thereto are specified in the appendix to this certificate and the documents referred to therein.

DEKRA EXAM GmbH, Notified Body number 0158, in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in the confidential Report No. BVS PP 18.2045 EU.

Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN 60079-0:2012 + A11:2013 General requirements
EN 60079-11:2012 Intrinsic Safety "i"

If the sign "X" is placed after the certificate number, it indicates that the product is subject to the Special Conditions for Use specified in the appendix to this certificate.

This EU-Type Examination Certificate relates only to the design and construction of the specified product. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by this certificate.

The marking of the product shall include the following:

 **II 1G Ex ia IIC T4/T3 Ga**

Details see 15.3

DEKRA EXAM GmbH
Bochum, 2018-03-29

Signed: Jörg Koch

Certifier

Signed: Dr Franz Eickhoff

Approver

13 **Appendix**

14 **EU-Type Examination Certificate**
BVS 18 ATEX E 027 X

15 **Product description**

15.1 **Subject and type**

Gas detector type G222E

15.2 **Description**

The Gas detector type G222E is a portable instrument with a replaceable power supply battery. It is used for the detection of gases in ambient air under atmospheric conditions.

The Gas detector type G222E contained 2 electro-chemical cells for gas measuring.

The measurement values are shown on a built-in display. If the present limits are reached, a visual alarm, an audible alarm and a vibrating alarm are produced.

The gas detector type G222E is powered by one alkaline battery which has to be changed only outside of the hazardous area.

15.3 **Parameters**

Power supply battery (one primary cell, AA LR6)

Nominal voltage

1.5 V

The approved alkaline battery type is listed in the manufacturer instructions of GfG Gesellschaft für Gerätebau mbH.

Ambient temperature range depend on temperature class:

Temperature class	Ambient temperature range
T4	$-20\text{ °C} \leq T_a \leq +45\text{ °C}$
T3	$-20\text{ °C} \leq T_a \leq +55\text{ °C}$

16 **Report Number**

BVS PP 18.2045 EU, as of 2018-03-29

17 **Special Conditions for Use**

The measuring function according to annex II paragraph 1.5.5 of the directive 2014/34/EU is not part of this EU-type Examination Certificate.

18 **Essential Health and Safety Requirements**

The Essential Health and Safety Requirements are covered by the standards listed under item 9.

19 **Drawings and Documents**

Drawings and documents are listed in the confidential report.

We confirm the correctness of the translation from the German original.
In the case of arbitration only the German wording shall be valid and binding.

DEKRA EXAM GmbH
Bochum, dated 2018-03-29
BVS-Rip/Nu A 20170485



Certifier



Approver

Translation

EU-Type Examination Certificate Supplement 1

Equipment intended for use in potentially explosive atmospheres
Directive 2014/34/EU

EU-Type Examination Certificate Number: **BVS 18 ATEX E 027 X**

Product: **Gas detector type G222E**

Manufacturer: **GfG Gesellschaft für Gerätebau mbH**

Address: **Klönnestr. 99, 44143 Dortmund, Germany**

This supplementary certificate extends EU-Type Examination Certificate No. BVS 18 ATEX E 027 X to apply to products designed and constructed in accordance with the specification set out in the appendix of the said certificate but having any acceptable variations specified in the appendix to this certificate and the documents referred to therein.

DEKRA Testing and Certification GmbH, Notified Body number 0158, in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in the confidential Report No. BVS PP 18.2045 EU.

The Essential Health and Safety Requirements are assured in consideration of:

EN IEC 60079-0:2018

General requirements

EN 60079-11:2012

Intrinsic Safety "i"

If the sign "X" is placed after the certificate number, it indicates that the product is subject to the Special Conditions for Use specified in the appendix to this certificate.

This EU-Type Examination Certificate relates only to the design and construction of the specified product. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by this certificate.

The marking of the product shall include the following:



**II 1G Ex ia IIC T4/T3 Ga
I M1 Ex ia I Ma**

Details see 15.3

DEKRA Testing and Certification GmbH
Bochum, 2021-08-19

Signed: Jörg-Timm Kilisch

Managing Director



Page 1 of 3 of BVS 18 ATEX E 027 X / N1 – Jobnumber 342384200
This certificate may only be reproduced in its entirety and without any change.

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Phone +49.234.3696-400, Fax +49.234.3696-401, e-mail DTC-Certification-body@dekra.com

13 **Appendix**

14 **EU-Type Examination Certificate**

**BVS 18 ATEX E 027 X
Supplement 1**

15 **Product description**

15.1 **Subject and type**

Gas detector type G222E

15.2 **Description**

Reason for this supplement:

- The Gas detector type G222E was tested in accordance to the standard EN IEC 60079-0:2018.
- The Gas detector type G222E can also be used in Group I areas. The marking was enhanced with I M1 Ex ia I Ma.

Description of Product:

The Gas detector type G222E is a portable instrument with a replaceable power supply battery. It is used for the detection of gases in ambient air under atmospheric conditions.

The Gas detector type G222E contained 2 electro-chemical cells for gas measuring.

The measurement values are shown on a built-in display. If the present limits are reached, a visual alarm, an audible alarm and a vibrating alarm are produced.

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15.3 **Parameters**

Power supply battery (one primary cell, AA LR6)

Nominal voltage

1.5 V

The approved alkaline battery type is listed in the manufacturer instructions of GfG Gesellschaft für Gerätebau mbH.

Ambient temperature range depend on temperature class:

Temperature class	Ambient temperature range
T4	$-20\text{ °C} \leq T_a \leq +45\text{ °C}$
T3 and Group I	$-20\text{ °C} \leq T_a \leq +55\text{ °C}$

16 **Report Number**

BVS PP 18.2045 EU, as of 2021-08-19

17 **Special Conditions for Use**

The measuring function according to annex II paragraph 1.5.5 of the directive 2014/34/EU is not part of this EU-type Examination Certificate.



18 **Essential Health and Safety Requirements**

The Essential Health and Safety Requirements are covered by the standards listed under item 9.

19 **Drawings and Documents**

Drawings and documents are listed in the confidential report.

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In the case of arbitration only the German wording shall be valid and binding.

DEKRA Testing and Certification GmbH
Bochum, 2021-08-19
BVS-Rip/Mu A20210777



Managing Director

