Gas detectors

BAM
Bundesanstalt für Materialforschung und -prüfung

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Certificate N°: BAM/ZBF/005/15

1st Revised Version

Hereby it is certified by the BAM Certification Body that the

Portable Gas Detector

Model: **GasAlertQuattro**

Types: **QT-X✶✶✶-A-✶-EU or UK with Oxygen sensor and**
QT-X✶✶✶-R-✶-EU or UK with Oxygen sensor

of the manufacturer

BW Technologies Ltd. by Honeywell
2840 – 2nd Avenue S.E., Calgary, Alberta, Canada T2A 7X9

meets the requirements of the following standards:

EN 50104:2010 *Electrical apparatus for the detection and measurement of oxygen – Performance requirements and test methods*

EN 50271:2010 *Electrical apparatus for the detection and measurement of combustible gases, toxic gases or oxygen – Requirements and tests for apparatus using software and/or digital technologies*

The type of construction of the apparatus and special conditions for safe use of the gas detector are given in the Annex to this Certificate. The results of the Type examination are provided in the confidential BAM test reports 15030754 dated August 11th, 2015 and 15042629 dated January 19th, 2016.

The certification covers a design type test on the basis of ISO/IEC 17065:2012 according to BAM Certification system I. The procedure for the certification is laid down in contract BAM-ZBF-0020-2010-BW TECHNOLOGIES.

The manufacturer declares conformity of the manufactured products with the product certified by BAM and may use the BAM certification signs „BAM Baumustergeprüft" respectively "BAM Design-type tested" together with the certificate number.

The certificate is valid until January 25th, 2020.

Bundesanstalt für Materialforschung und -prüfung (BAM)
D-12200 Berlin, January 26th, 2016

By order

Dr. rer. nat. R. Schmidt
BAM Certification Body

Dr. rer. nat. V. Lohse
Technical Expert and Assessor

Distribution list: 1st Manufacturer 2nd BAM Certification Body

The BAM Certification Body has been accredited according to standard ISO/IEC 17065:2012 by the DAkkS (Deutsche Akkreditierungsstelle GmbH). The accreditation is valid for the scope given in certificate D-ZE-11075-21-00.

2015-10

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Description of the apparatus

The GasAlertQuattro is a group II gas detector intended for use in potentially explosive atmospheres (excluding mines susceptible to firedamp).

The gas detector GasAlertQuattro is a portable, explosion-proof gas detector which can be fitted with Alkaline batteries or rechargeable Lithium Polymer batteries. The GasAlertQuattro has 4 sensor plug-in positions and the tested apparatus were fitted with a catalytic sensor for measuring combustible gases, an oxygen sensor, a CO and a H_2S sensor. Gas reaches the sensor by diffusion.
The gas detector can be used for the warning of dangerous oxygen concentrations by oxygen deficiency or enrichment. The GasAlertQuattro is not suitable for the supervision of low oxygen concentrations in the range of the oxygen limit values of potentially explosive atmospheres to avoid a pass over of such low oxygen concentrations (supervision of inertisation processes in context of explosion protection - inert gas purging).
The GasAlertQuattro may be equipped with a variable number of sensors which are activated/deactivated by using the configuration software "Fleet Manager II". The tested apparatus are equipped with firmware version „GAQF_04_000".

The oxygen sensor of the GasAlertQuattro operates on the electrochemical principle and is configured with a measuring range 0 % (v/v) O_2 to 30 % (v/v) O_2.
The measuring channel for oxygen of the GasAlertQuattro is equipped with two adjustable alarm thresholds, which are adjustable both below, both above or one above and one below the air oxygen value of 20.9 % (v/v), respectively. Below 20.9 % (v/v) oxygen the alarm is activated when the concentration falls below an alarm threshold value. Above 20.9 % (v/v) oxygen the alarm is triggered when the concentration exceeds an alarm threshold value. The apparatus is supplied with these alarms configured as non-latching alarms, although these may be modified by the user to latching alarms if required. The alarm output is given visually, acoustically, by indication in the graphic display and as vibration alarm.

Tested equipment:

Host unit: GasAlertQuattro Types

- QT-X✶✶✶-A-✶-EU or UK
  Quattro versions with Oxygen sensor (X) and certified alkaline batteries (A)
- QT-X✶✶✶-R-✶-EU or UK
  Quattro versions with Oxygen sensor (X) and certified Lithium polymer battery (R)

O_2-Sensors: a) Oxygen O2-A2 identical to O2-A2 Oxygen Sensor, Alphasense Ltd.
b) Oxygen (O_2) Gas Sensor 4OXV CiTiceL® by City Technology Ltd.

Batteries: 1. Alkaline Battery Pack QT-BAT-A01 fitted with AA-Alkaline Batteries:
a) Duracell MN1500
b) Energizer E91VP/E91
2. Lithium Polymer GasAlertQuattro Battery Pack QT-BAT-R01

Accessories: 1. Battery Charger: a) Switching Power Supply Model: GT-41052-1506
b) GasAlertQuattro-Multi-unit cradle Charger QT-C01-MC5
2. Calibration cap: Calibration cap QT-TC-1
3. Configuration software: "Fleet Manager II" version 2.6.0 or higher

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BAM Test reports dated August 11th, 2015 and dated January 19th, 2016.

The test report 15030754 comprises 6 pages and 2 annexes and test report 15042629 17 pages and 2 annexes.

Examination documents:
The examination documents are recorded in the test reports clause 3, respectively.

Special conditions for safe use:

1. Compliance with the user manual is required for safe use of GasAlertQuattro.
2. The following environmental conditions of operation apply for the use of GasAlertQuattro with oxygen sensor:

Temperature:	-20 °C to +50 °C
Relative humidity:	5 % to 95 %
Pressure:	80 kPa to 120 kPa

   (extended range for temperature and humidity according to EN 50104)
3. In order to minimise measurement errors, the ambient conditions (temperature, pressure, humidity) during the calibration of the measuring channels should be as close as possible to those to be encountered during normal operation.
4. Measuring values from 20.5 % (v/v) up to 21.3 % (v/v) are indicated as "20.9" % (v/v) oxygen during measuring operation. Measuring values in a ±0.2 % (v/v) oxygen range of the configured span gas concentration are indicated as the configured span gas concentration value.
5. For the configuration of the GasAlertQuattro the configuration software "Fleet Manager II" rev. 2.6.0 or higher shall be used. Before use of the GasAlertQuattro, the Stealth Mode option shall be disabled.
6. If substances (e. g. sensor poisons) that could interfere with and affect the sensitivity of the sensing device, are to be expected in the atmosphere to be monitored which may cause a rapid change of sensitivity, the calibration interval shall be reduced.
7. Before use, ensure that any alarm delay set is suitable for the intended application.
8. Cross sensitivities described in the sensor data sheet shall be considered.
9. Some types and concentrations of dust in the measured atmosphere may impair the measuring function of the gas detector.
10. The gas detector shall be brought in a hazardous area in the switch on state, only.
11. If the Low Battery Alarm is given the user must leave the hazardous area immediately.
12. The Type Examination Certificate applies to the measurement of oxygen up to 25 % (v/v).

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Additional information:

This Type Examination Certificate covers the examination of the oxygen measuring function on the basis of EN 50104 and the test of the installed software and the used digital technologies in the gas detector according to EN 50271. This Type examination certificate applies to apparatus with tested software version „GAQF_04_000".
The manufacturer shall inform the BAM Certification Body of all modifications of the approved equipment, as far as the product modifications could affect the conformity with the essential requirements covered by this certificate or the prescribed conditions for safe use of the gas detector and which requires further approval.

Bundesanstalt für Materialforschung und -prüfung (BAM)
D-12200 Berlin, January 26th, 2016

By Order

BUNDESANSTALT FÜR MATERIALFORSCHUNG UND -PRÜFUNG (BAM) 51

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