IECEx Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION
IEC Certification Scheme for Explosive Atmospheres

for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.:	IECEx CSA 16.0052X	Issue No: 0	Certificate history: Issue No. 0 (2016-10-28)
Status:	**Current**	Page 1 of 3	
Date of Issue:	**2016-10-28**		

Applicant:
GfG Instrumentation, Inc.
1194 Oak Valley Dr, Ste 20
Ann Arbor, Michigan 48108
United States of America

Equipment:
Portable Gas Detectors G450 and G460

Optional accessory:
G400-MP1 pump or G400-MP2 pump

Type of Protection:
Ex da ia, Ex db eb ia

Marking:

Ex da ia IIC T3 Ga (for model G450)

Ex db eb ia IIC T3/T4 Gb (for model G460);

Ambient temperature range:

- 20 ≤ Ta ≤ +50 °C (T3, G450, G460)
-20 ≤ Ta ≤ +45 °C (T4, G460 with alkaline battery pack)

Approved for issue on behalf of the IECEx Certification Body: Dorin Stochitoiu

Position: Technical Advisor

Signature:
(for printed version)

Date:

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting the Official IECEx Website.

Certificate issued by:

CSA Group
178 Rexdale Boulevard
Toronto, Ontario M9W IR3
Canada

CSA Group

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Manufacturer:	**GfG Instrumentation, Inc.** 1194 Oak Valley Dr, Ste 20 Ann Arbor, Michigan 48108 **United States of America**	

Additional Manufacturing location(s):

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements. This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended.

STANDARDS:

The electrical apparatus and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards:

IEC 60079-0 : 2011 Edition:6.0	Explosive atmospheres - Part 0: General requirements
IEC 60079-1 : 2014-06 Edition:7.0	Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"
IEC 60079-11 : 2011 Edition:6.0	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
IEC 60079-7 : 2015 Edition:5.0	Explosive atmospheres – Part 7: Equipment protection by increased safety "e"

*This Certificate **does not** indicate compliance with electrical safety and performance requirements other than those expressly included in the Standards listed above.*

TEST & ASSESSMENT REPORTS:

A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in

Test Report:

CA/CSA/ExTR16.0057/00

Quality Assessment Report:

CA/CSA/QAR15.0006/00

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Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

Portable Gas Detectors models:

G450 with and without G400-MP1 pump or G400-MP2 pump
G460 with and without G400-MP1 pump or G400-MP2 pump

See Annex attached to this Certificate for full description of equipment.

CONDITIONS OF CERTIFICATION: YES as shown below:

See Annex attached to this Certificate for Specific Conditions of Use.

Annex:

Annex to IECEx CSA 16.0052X Issue 0.pdf

EQUIPMENT DESCRIPTION:

G450: Ex da ia IIC
G460: Ex db eb ia IIC
-20 ≤ Ta ≤ +50 °C (T3, G450, G460)
-20 ≤ Ta ≤ +45 °C (T4, G460 with alkaline battery pack)

The G450 is a portable, multiple gas detector. The detector may contain one to four sensors, using one each of the following sensors: a catalytic combustibles sensor (City Technology 4P-75C, certified Ex da), an oxygen sensor, a carbon monoxide sensor, and a hydrogen sulfide sensor. The detector is powered from any of three battery packs (also referred to as battery modules) that require a tool to replace. All of the battery packs include a vibrator. One battery pack utilizes two replaceable AA alkaline batteries. Two battery packs utilize two rechargeable NiMH AA batteries that are encapsulated within the battery pack. One of the battery pack variations includes LED lamps. T3 @ Ta = -20 °C ≤ Ta ≤ +50 °C

The G460 is a G450 with the additional components IR sensor, PID sensor and Micro SD card. The IR sensor has an intrinsically safe power supply and an intrinsically safe IR detector. The lamp of the IR sensor is integrated into a casing with the protection type enhanced safety 'eb', so the IR lamp is 'eb'. The G460 can use 3 electro-chemical cells or, as an option, 2 electro-chemical cells and 1 PID-sensor as well as 1 sensor of flameproof enclosure and 1 infrared sensor. The CC sensor (MK211) has been certified with the type of protection 'db'. The power supply is intrinsically safe and does not exceed the limiting values of the sensor.

The G450 and G460 are very similar and use the same battery packs and display. The G460 has a new socket board and main board. The main board is designed to allow the use of “smart sensors” and CO2 and PID sensor configurations. The G460 is also able to use an IR sensor and a Micro SD card. The PID sensor optionally provided (piD-TECH Sensor Plus, ZPP60180**, cert. IECEx UL 06.0011U, Baseline-Mocon Inc.) is not the subject of this test report. The only parameters assessed were the interconnection and whether the maximum temperatures are kept where mounted. T3 @ Ta = -20 °C ≤ Ta ≤ +50 °C, T4 @ Ta = -20 °C ≤ Ta ≤ +45 °C when using the alkaline battery pack.

The maximum charging voltage for both the G450 and G460 is limited to U_m = 6V, and current-limited so as to comply with IEC 60079-11 (Ed. 6), concerning connections and accessories for IS apparatus when located in the non-hazardous area.

There are two optional pumps available, models G400-MP1 or G400-MP2. The pump allows gas sampling from a safe distance using a hose that connects to the bottom of the pump. The pump is powered by a separate battery pack (1450-202 or 1450-211) which operates independently from the G450 or G460. The G400-MP2 has additional circuitry so that low flow alarm and the pump battery voltage status are displayed on the gas detector display.

"Specific Conditions of Use":

1. The measurement function for explosion protection is not the subject of this test report.

2. The ambient temperature range of the equipment is as follows:
   -20 ≤ Ta ≤ +50 °C (T3, G450, G460)
   -20 ≤ Ta ≤ +45 °C (T4, G460 with alkaline battery pack).

3. Read and understand instruction manual before operating or servicing.

4. Use only battery pack 1450-202, 1450-211 or 1450-212. Do not mix new batteries with used batteries. Replace or recharge batteries only in a non-hazardous location (or equivalent warnings).

5. No precautions against electrostatic discharge are necessary for portable equipment that has an enclosure made of plastic, metal, or a combination of the two, except where a significant static-generating mechanism has been identified. Activities such as placing the item in a pocket or on a belt, operating a keypad, or cleaning with a damp cloth, do not present a significant electrostatic risk. However, where a static-generating mechanism is identified, such as repeated brushing against clothing, then suitable precautions shall be taken, for example, the use of anti-static footwear. Additionally, the equipment shall be carried at the body while in the hazardous location, and must not be laid down unattended.

6. Under certain extreme circumstances, the non-metallic cover may generate an ignition-capable level of electrostatic charge; therefore, the equipment shall not be used in a location where the external conditions are conducive to the build-up of electrostatic charge on such surfaces. In addition, the equipment shall only be cleaned with a damp cloth.

7. If a charge-generating mechanism is present, the exposed metallic part on the enclosure is capable of storing a level of electrostatic charge that could become incendive for IIC gases. Therefore, the user / installer shall implement precautions, for example, those listed above, to prevent the build-up of electrostatic charge. This is particularly important if the equipment is brought into a Zone 0 location.

8. The equipment shall only be charged when in the non-hazardous area using a charger specifically supplied for use with the unit (for example part number 4001-650, manufactured by GfG), approved as SELV or Class 2 equipment against IEC 60950, IEC 61010-1 or an equivalent IEC standard. The maximum voltage and current from the charger shall not exceed 12 Vdc and 1.25 A respectively, and be further limited by the charging system to U_m = 6 Vdc.