IECEx Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION
IEC Certification System for Explosive Atmospheres

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

Certificate No.: **IECEx CSA 17.0005X**

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Status: **Current**

Issue No: 15

Date of Issue: 2025-03-18

Applicant: **Blackline Safety**
Suite 100, 803 24th Ave SE
Calgary, Alberta T2G 1P5
Canada
Canada

Certificate history:

Issue 14 (2024-10-07)
Issue 13 (2024-03-27)
Issue 12 (2023-01-10)
Issue 11 (2022-06-10)
Issue 10 (2022-05-04)
Issue 9 (2020-02-26)
Issue 8 (2020-01-21)
Issue 7 (2019-12-13)
Issue 6 (2018-10-12)
Issue 5 (2018-03-12)

Equipment: **Model G7, G7c, and G7x Portable Gas Detector**

Optional accessory:

Type of Protection: **Ex ia, Ex da (when the equipment is used with pellistor sensor)**

Marking: G7, G7c, G7x - Ex ia IIC T4 Ga

G7, G7c with pellistor sensor - Ex da ia IIC T4 Ga

-20°C ≤ Ta ≤ +55°C

Approved for issue on behalf of the IECEx Certification Body: **Dave Magee**

Position: **Senior Director of Operations**

Signature:
(for printed version)

Date:
(for printed version)

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 www.iecex.com or use of this QR Code.

Certificate issued by:

CSA Group
178 Rexdale Boulevard
Toronto, Ontario M9W IR3
Canada

IECEx Certificate of Conformity

Manufacturer: **Blackline Safety**
Suite 100, 803 24th Ave SE
Calgary, Alberta T2G 1P5
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Manufacturing locations: **Blackline Safety**
Suite 100, 803 24th Ave SE
Calgary, Alberta T2G 1P5
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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 equipment 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 60079-0:2017 Explosive atmospheres - Part 0: Equipment - General requirements
Edition:7.0

IEC 60079-1:2014 Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"
Edition:7.0

IEC 60079-11:2011 Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
Edition:6.0

IEC 60079-26:2014 Explosive atmospheres – Part 26: Equipment with Equipment Protection Level (EPL) Ga
Edition:3.0

This Certificate **does not** indicate compliance with 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 Reports:

CA/CSA/ExTR17.0004/00
CA/CSA/ExTR17.0004/01
CA/CSA/ExTR17.0004/02
CA/CSA/ExTR17.0004/03
CA/CSA/ExTR17.0004/04
CA/CSA/ExTR17.0004/05
CA/CSA/ExTR17.0004/06
CA/CSA/ExTR17.0004/07
CA/CSA/ExTR17.0004/08
CA/CSA/ExTR17.0004/09
CA/CSA/ExTR17.0004/10
CA/CSA/ExTR17.0004/11
CA/CSA/ExTR17.0004/12
CA/CSA/ExTR17.0004/13
CA/CSA/ExTR17.0004/14
CA/CSA/ExTR17.0004/15

Quality Assessment Report:

CA/CSA/QAR16.0006/06

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EQUIPMENT:
Equipment and systems covered by this Certificate are as follows:

G7* Portable Gas Detectors combining a Base Unit with a Gas Cartridge

Base unit – P/N “G7*-#” (Where * = c or x or blank; # = NA, EU or AZ).

Gas Cartridge – Where # = Electro chemical sensor identifier or “X” indicating no sensor

No Gas Module P/N “Z”

Single Gas Module P/N “S-#”

Multi Gas Module P/N “Q-####”

Pump Module P/N “P-####”

Auxiliary battery – P/N “ACC-G7-BAT”

Battery powered (3.8V nominal Lithium); Temperature Code T4,

Ambient temperature range of -20°C ≤ Ta ≤ +55°C.

The G7c is a worker monitoring and gas detection instrument that collects real-time information, such as, surrounding environmental conditions, the worker’s location and their movement to detect falls and no-motion, any of which could trigger an alert when reported back to a central server through the cellular network. Location information is calculated using a combination of GPS, proprietary indoor beacons and cellular triangulation. The G7c is a body-worn device powered by a 3.8 V, lithium polymer battery. There are three, basic versions of the G7c, all of which use a common, main base unit fitted with any one of the following, interchangeable cartridges:

- a standard cartridge with no-gas module
- a single-gas cartridge (the type of gas sensor can be selected according to application)
- a Multi-gas cartridge (the types of gas sensor can be selected according to application)

Internally, the G7* consists of a main microprocessor, an inertial motion unit, a GPS receiver, a 3G cellular transceiver, a magnetic speaker, a vibration motor, a microphone, an LCD screen, a lithium polymer battery, momentary switches, and various other supporting components. User input is registered through the momentary switches, a reed switch, and the microphone. Instrument output is given through the LCD screen, LEDs, the vibrator, and the speaker.

The G7 main board is an updated version of the G7c main board. The most significant deviation from the G7c is the addition of the 900MHz transceiver module MOD900 (Part no: CMWX1ZZABZ-078, Manufacturer: Murata).

The G7c and G7 main unit is approved and marked for Ex ia IIC T4 Ga.

All the gas modules that are used with the main unit are approved for Ex ia IIC T4 Ga but are not marked as such since this marking is on the main unit already.

The G7c and G7 unit with pellistor sensor is approved and marked for Ex da ia IIC T4 Ga as the pellistor sensor is certified to Ex da IIC Ga under IECEx OBAC 18.0001U.

The G7x main unit is approved and marked for Ex ia IIC T4 Ga.

The ACC-G7-BAT is an auxiliary battery that can be connected to all G7 instruments and safely provide additional battery life. This battery pack is intended to augment the internal battery of the G7 instruments. Any high current pulses (e.g. RF transmissions) will still utilize the G7 battery, however, the ACC-G7-BAT is intended to supply current to cover the average current draw of the G7 instruments.

SPECIFIC CONDITIONS OF USE: YES as shown below:

1. 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 SAW06D-050-1000xx, manufactured by Shenzhen Shi Ying Yuan Electronics Co., Ltd.), 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 5.625Vdc and 2A respectively.

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DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)
This issue, **Issue 15**, introduced the following changes:

1. Minor drawing correction.

Annex:

IECEx CSA 17.0005X Annexe Issue 15.pdf

Annexe to: **IECEx CSA 17.0005X Issue 15**

Applicant: **Blackline Safety Corporation**

Apparatus: **Model G7, 7c and G7x Portable Gas Detector**

Conditions of Manufacture

1. The G7 / G7c / G7x incorporates a previously certified combustible and pellistor gas sensor. It is therefore the responsibility of the manufacturer to continually monitor the status of the certification associated with this device. The manufacturer shall inform CSA of any modifications to the device that may impinge upon the explosion safety design of the gas detector.

Full certificate change history

Issue 1 – this Issue introduced the following changes:

1. Update to add new model G7x Portable Toxic Gas Detector rated for Ex ib IIC T4 Gb and to add minor modifications to the No gas and
2. Single gas cartridges

Issue 2 – this Issue introduced the following change:

1. Update to include layout changes to the main PCB for the G7c as well as component value changes/additions/removal to the critical nd non-critical components.

Issue 3 – this Issue introduced the following change:

1. Update to add new G7 quint gas and Single gas module.

Issue 4 – this Issue introduced the following changes:

1. Revision to Quint gas cartridge module to add new components.
2. Revision to Single gas PID cartridge module to add new components, modify and remove old components.
3. Editorial changes.
4. Addition of alternate non-metallic front label material.

Issue 5 – this Issue introduced the following changes:

1. Addition of new capacitors and resistors in the G7c multi-gas cartridge module.
2. Technical documents update.

Issue 6 – this Issue introduced the following changes:

1. Addition of pump board (two designs) to quint gas module.
2. Update to main board.
3. Update to single gas module.
4. Update to G7 speaker board.

Issue 7 – this Issue introduced the following changes:

1. Addition of G7 main board.
2. Addition of auxiliary battery board (G7OXBAT).
3. Update to the existing Microphone board.

Issue 8 – this Issue introduced the following change:

1. Addition of new combustible gas sensor (MPS4) for quint gas cartridge module.

Issue 9 – this Issue introduced the following change:

1. Addition of IEC 60079-26, Ed.3.

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Issue 10 – this Issue introduced the following changes:

1. Update to main board.
2. Update to multi-gas diffusion and pump module.
3. Update to no gas module and single gas module.
4. Addition of City Tech 4P75C pellistor sensor.
5. Revisions or Manufacturer's documents to cover changes for items 1 to 4.

Issue 11 – this Issue introduced the following changes:

1. Address changes on G7c Main Board.
2. Address harmonization of G7x Main Board schematic with G7c Main board schematic.
3. Assessment of G7x Mlink Ultra radio module and circuitry to harmonize the design with G7c.
4. Based on the harmonized circuitry, update G7x ratings from 'Ex ib' to 'Ex ia'.
5. Update IEC 60079-0:2011 to IEC 60079-0:2017

Issue 12 – this Issue introduced the following changes:

1. To permit the use of alternative Integrated Circuits.
2. To permit the use of alternative encapsulants.
3. To permit the use of an alternative enclosure material.
4. To permit a number of drawing changes.

Issue 13 – this Issue introduced the following change:

1. Update multiple PCBs for component changes and component additions.

Issue 14 – this Issue introduced the following change:

1. Update multiple PCBs for component changes and component additions.

Issue 15 – this Issue introduced the following change:

1. Minor drawing correction.

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