



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 BVS 14.0120X Issue No: 4 Certificate history:
Status: **Current** Issue No. 4 (2017-10-25)
Date of Issue: **2017-10-25** Issue No. 3 (2016-07-12)
Page 1 of 4 Issue No. 2 (2015-12-10)
Issue No. 1 (2015-07-23)
Issue No. 0 (2015-01-07)
Applicant: **Mine Safety Appliances Company, LLC**
1000 Cranberry Woods Drive
Cranberry Township, PA 16066-5296
United States of America
Equipment: **Self-contained breathing apparatus electronics type G1**
Optional accessory:
Type of Protection: **Equipment protection by intrinsic safety "i"**
Marking: Ex ia IIC T4 Ga

Approved for issue on behalf of the IECEx
Certification Body:

Dr Franz Eickhoff

Position:

Deputy Head of Certification Body

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](http://www.iecex.com).

Certificate issued by:

DEKRA EXAM GmbH
Dinnendahlstrasse 9
44809 Bochum
Germany





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Manufacturer: **Mine Safety Appliances Company, LLC**
1000 Cranberry Woods Drive
Cranberry Township, PA 16066-5296
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 Explosive atmospheres - Part 0: General requirements
Edition:6.0

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

*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:

[DE/BVS/ExTR15.0001/04](#)

Quality Assessment Report:

[FR/INE/QAR08.0011/07](#)



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Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

General product information:

The self-contained breathing apparatus electronics type G1 is used as part of the G1 self-contained breathing apparatus (Personal protective equipment - PPE) for monitoring and controlling.

The self-contained breathing apparatus electronics type G1 consists of

1 alkaline battery pack	Model 7-2813-1 or
1 Lithium-Ion Battery Pack	G1 SCBA Rechargeable Lithium-Ion Battery Pack, P/N 10161002 (IECEX FTZU 15.0011U)
1 power module	Model 7-2812-1 or Model 7-2811-1 TELEMETRY or Model 7-3007-1 TELEMETRY AUS
1 speaker module	Model 7-2827-1
1 control module	Model 10152107 (bar) or Model 10152108 (MPa) or
1 control module (with TIC)	Model 10175023 (bar) or Model 10175022 (MPa)
1 MMR module	Model G1 MMR

The speaker module, the control module and the MMR module are fixed connected via 3 special designed cables to the power module. The alkaline battery pack (6 alkaline cells) is directly connected to the power module via an infallible connector. The disconnection and the changing of the batteries is only allowed outside of the hazardous area.

The G1 SCBA Rechargeable Lithium-Ion Battery Pack (IECEX FTZU 15.0011U) is directly connected to the power module via an infallible connector. The disconnection and the charging of the battery is only allowed outside of the hazardous area (see Conditions of Use).

Ratings:

See Annex

SPECIFIC CONDITIONS OF USE: YES as shown below:

Properly donning and doffing of the complete G1 self-contained breathing apparatus shall be done only in non-hazardous areas.

Before entering the hazardous area, the complete self-contained breathing apparatus electronics type G1 has to be checked for mechanical damages including the conductive ink layers of the housings.

The disconnection of the alkaline battery pack and the changing of the batteries is only allowed in non-hazardous areas. Replace only batteries of the same type.

The disconnection of the G1 SCBA Lithium-Ion Rechargeable Battery Pack and the charging is only allowed in non-hazardous areas. Charging temperature: 0 °C up to +45 °C.

The G1 SCBA Lithium-Ion Rechargeable Battery Pack shall only be connected to, and charged by, an intrinsically safe electrical supply output that limits the voltage and current to the values $U_i = 10.5 \text{ V}$ and $I_i = 0.85 \text{ A}$.

The maximum RF radiation power of the antenna used for activation of the RFID Tag type LOGI TAG 161 ICODE SLIX in hazardous areas shall not exceeded 2 W for Group IIC.

The ambient temperature range is $-30 \text{ °C} \leq T_a \leq +60 \text{ °C}$.



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DETAILS OF CERTIFICATE CHANGES (for issues 1 and above):

The mechanical and the electrical design was partly modified.
The control module (with TIC) Model 10175023 (bar) and Model 10175022 (MPa) was added.

Annex:

[BVS_14_0120X_MSA_Annex_Issue4.pdf](#)



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Annex
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Ratings:

- 1 Alkaline battery pack (6 cells, size C, LR14)

Nominal voltage 9 V

The approved Alkaline battery types are listed in the manufacturer instructions of Mine Safety Appliances Company.

(Energizer E93, Duracell Procell PC1400, Duracell MN1400, Panasonic Industrial LR14XWA, Panasonic Evolta C-LR14, Industrial Panasonic Powerline)

- 2 G1 SCBA Rechargeable Lithium-Ion Battery Pack (IECEX FTZU 15.0011U)

Nominal voltage 7.2 V

- 3 RF module type alphaLRR IECEx
(mounted and connected inside of the power module)

Frequency 868 MHz
Maximum RF output power 0.5 W

- 4 RFID Tag type LOGI TAG 161 ICODE SLIX
(mounted inside of the power module, speaker module, control module and MMR module)

The maximum RF radiation power of the antenna used for activation of the RFID Tag type LOGI TAG 161 ICODE SLIX in hazardous areas shall not exceed 2 W for Group IIC. (Value from IECEx FTZU 14.0022X)

- 5 Bluetooth Module (connected inside of the power module)

Frequency 2.4 GHz
Maximum RF output power < 10 mW

- 6 RFID Module (connected inside of the power module)

Frequency 13.56 MHz
Maximum RF output power < 100 mW

- 7 Ambient temperature range $-30\text{ °C} \leq T_a \leq +60\text{ °C}$