



# Certificate of Compliance

**Certificate:** 70013111

**Master Contract:** 167534

**Project:** 80008149

**Date Issued:** 2019-10-29

**Issued To:** MSA - The Safety Company  
1000 Cranberry Woods Dr  
Cranberry Township, Pennsylvania, 16066-5296  
United States

**Attention:** Stephen Kancel

*The products listed below are eligible to bear the CSA Mark shown with adjacent indicator 'US'*



**Issued by:** *Anil Sodhi*  
Anil Sodhi

## **PRODUCTS**

**CLASS 2258-83** PROCESS CONTROL EQUIPMENT-Intrinsically Safe and Non-Incendive-Systems-For Hazardous Locations-Certified to U.S. Standards

**Class I, Division 1, Groups C, D T1**

**Class II, Groups E, F, G T3B**

Model G1-SCBA Self-Contained Breathing Apparatus accessories with standard control module; Consists of the Mask-Mounted Regulator (MMR) module, the Battery Module, Control Module, the Power Module and the optional Speaker Module; Intrinsically Safe when powered by battery pack model number 7-2813-1 or 7-2814-1; Ambient operating range:  $-20^{\circ}\text{C} \leq T_a \leq +40^{\circ}\text{C}$ .

Model G1-SCBA Self-Contained Breathing Apparatus accessories with thermal imaging camera (TIC) control module; Consists of the Mask-Mounted Regulator (MMR) module, the Battery Module, TIC Control Module, the Power Module and the optional Speaker Module; Intrinsically Safe when powered by battery pack model number 7-2813-1 or 7-2814-1; Ambient operating range:  $-20^{\circ}\text{C} \leq T_a \leq +40^{\circ}\text{C}$ .



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**Conditions of Acceptability:**

1. Battery pack model numbers 7-2813-1 and 7-2814-1 shall only be assembled as defined in the Critical Components section of the report.
2. The individual accessories are not permitted in the hazardous area as stand-alone entities; only the complete set of accessories installed in the finished goods harness assembly shall be accepted in the hazardous area.
3. The module comprised of the new Long Range Radio (LRR-SG) board assembly mounted onto the Supply Interface (Limiter) board assembly has to be powered by an intrinsically safe power supply with level of protection Ex-ia.
4. Antenna wire must have an isolation thickness of at least 0.5mm.
5. The LRR-SG module is only allowed to be used with a device G1-SCBA of MSA Cranberry.



**APPLICABLE REQUIREMENTS**

UL Standard 508 <i>(Seventeenth Edition)</i>	Industrial Control Equipment
UL Standard 913 <i>(Fifth Edition)</i>	Intrinsically Safe Apparatus and Associated Apparatus for Use in Class I, II, and III, Division I Hazardous (Classified) Locations
UL Standard 913 <i>(Sixth Edition)</i>	Intrinsically Safe Apparatus and Associated Apparatus for Use in Class I, II, and III, Division I Hazardous (Classified) Locations

**MARKINGS**

- The following words shall appear on the adhesive nameplate on the body of the Power Module enclosure:
    - Manufacturer’s name, “MSA Company”, “MSA” or CSA Master Contract Number “167534” in lieu of Manufacturer’s name, adjacent to the CSA Mark.
    - Model number (type designation): as specified in the PRODUCTS section.
    - Manufacturing date in MMY format, or serial number, traceable to month and year of manufacture (Externally viewable through a transparent window of the externally located adhesive label).
    - The CSA Mark, as shown on page 1 of the Certificate of Conformity.
    - Hazardous Location designation: as specified in the PRODUCTS section, above.
    - Temperature Code: as specified in the PRODUCTS section, above.
    - “Exia”
- The following cautions and warnings in English (may also be provided in French):
- “INTRINSICALLY SAFE”
  - “ WARNING: UNDERSTAND MANUAL BEFORE OPERATING” may be combined with “WARNING – TO PREVENT IGNITION OF FLAMMABLE OR COMBUSTIBLE




ATMOSPHERES, READ, UNDERSTAND AND ADHERE TO THE LIVE MAINTENANCE PROCEDURES CONTAINED IN THE MANUAL” (This literature shall accompany each apparatus)

- “ WARNING – EXPLOSION HAZARD – SUBSTITUTION OF COMPONENTS MAY IMPAIR INTRINSIC SAFETY” (Equivalent wording is acceptable).
- “ WARNING – USE ONLY BATTERY PACK MODEL NUMBER 7-2813-1 or 7-2814-1” (Equivalent wording is acceptable).



• The following shall appear on the Battery Pack:

- Either engraved into the housing or printed onto the permanent adhesive nameplate label -
  - Battery Pack Model number and Manufacturer’s name, “MSA Company” or “MSA”.
  - Manufacturing date in MMY format, or serial number, traceable to month of manufacture.

The following cautions and warnings in English (may also be provided in French):

- “ WARNING: DO NOT MIX OLD/NEW OR DIFFERENT TYPE BATTERIES” (Equivalent wording is acceptable).
- “ WARNING: CHANGE AND/OR RECHARGE BATTERIES ONLY IN A NONHAZARDOUS LOCATION” (Equivalent wording is acceptable).
- “ WARNING: THIS BATTERY PACK IS EXCLUSIVELY DESIGNED FOR INSTALLATION AS THE POWER SUPPLY FOR THE Model G1-SCBA” (Equivalent wording is acceptable).

• The INSTRUCTION/ OPERATOR’S MANUAL shall contain:

- The complete listing of approved battery cells for battery pack model number 7-2813-1
- The following cautions and warnings in English (may also be provided in French) –
  - “ WARNING: DO NOT MIX OLD/NEW OR DIFFERENT TYPE BATTERIES” (Equivalent wording is acceptable).
  - “ WARNING: CHANGE AND/OR RECHARGE BATTERIES ONLY IN A NONHAZARDOUS LOCATION” (Equivalent wording is acceptable).



## Supplement to Certificate of Compliance

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*The products listed, including the latest revision described below, are eligible to be marked in accordance with the referenced Certificate.*

### Product Certification History

Project	Date	Description
80008149	2019-10-29	Update CSA report 70013111 to assess the following modifications: Introduction of Long Range Radio, 2nd Gen. as an alternate assembly of G1 SCBA; Update of documentation section to include LRR-SG drawings.
80012751	2019-08-08	Update CSA report 70013111 to introduce a new alternate customer instruction manual with reference to new NFPA editions and some other additional instructions
000070193951	2018-10-25	Update CSA Report 70013111 to introduce an alternate assembly drawing SK3098-1446 for the G1 SCBA Speaker module's wire assembly and drawing SK3098-1449 for the G1 SCBA MMR module's filter assembly.
000070191241	2018-07-18	Update to CSA Report 70013111 to assess the followings: 1. Editorial changes in drawing SK3098-1425 which were assessed in previously (population or C84, removal of R207 and R208) 2. Two alternate belt bucking systems
000070187148	2018-06-26	Update to CSA report 70013111 to assess the Lithium-Ion cell Molicel INR-18650A which is an alternate to the Lithium-Ion cell Panasonic/Sanyo UR-18650A referenced in Note 3, Sheet 2 of 2 of drawing SK3098-1309. Leakage test and temperature test will need to be conducted ***14 samples (packs) are required***
000070183484	2018-05-23	Update to CSA report 70013111 to assess the clerical changes in drawings SK3098-1285 & SK3098-1368 as described in GCA-1355_Rev 0. This quote is based on the following assumptions: 1. No sample and testing are required. 2. This quotation is based on the limited information supplied. If a subsequent review of the full information indicates that additional assessment is required, then a re-estimate of costs may be necessary.
000070160817	2017-12-22	Update report 70013111 to assess the followings: 1. Addition of the alternate construction for the PWR MDL LRR G1 by removing the LRR (Long Range Radio) and its power supply circuit. R14 and R19, which were removed from the LRR circuit, have been added to LRR interface of paralleled protective resistors and as a result, the new value was changed to



3.32K. ohms. 2. New alternate construction of conformal coating 3. Changes in a few non-protective components. 4. Review and assess the spacing of the new power module printed circuit board at MSA facility. Notes: 1. The quote was generated per document GCA-1120, Rev 2, dated Oct 23, 2017 issued by MSA. 2. The quote includes all the cost for 1 day visit at MSA facility. The date will be determined.

000070126701	2017-10-10	Update to Report 70013111 to assess multiple revised descriptive documents for the PCBs and mechanical assemblies (GCA-907).
000070086340	2017-02-22	Update to Report 70013111 to add alternate assembly of the G1 SCBA containing a revised Control Module assembly with an integral Thermal Imaging Camera; includes multiple revised descriptive documents for the PCBs and mechanical assemblies (GCA-383).
000070077413	2016-07-20	Update Report 70013111 to assess and record minor changes made to the alkaline battery pack assembly, the MMR analysis, minor changes to Control Module drawings and a revision of the Power Module involving changes to the schematic, board layout & parts list that also impact the High System Level I.S. schematic.
000070053933	2015-11-25	Update Report 70013111 to permit the use of alternate capacitors per the established CSA report component Substitution/ Interchangeability criteria.
000070051920	2015-11-12	Continuation of update to Report 70013111 to include Intrinsically Safe rechargeable Lithium-Ion Battery Pack, per suitable test data received via FTZU (an ExCB), as an alternate power supply for the G1. Additional funds to be requested for any testing determined to be necessary.
000070041158	2015-08-21	Evaluation to update Report 70013111 to add an alternate source to the non-protective N-FET specified for Q1 # Q13 on the MMR Module; considers alternate part only requires change to the schematic and bill of materials. Additional funds to be requested for any testing determined required.
000070036627	2015-07-16	Evaluation to update Report 70013111 to accept three revised descriptive documents of the Power Module design for changes made to R74 & C33 and review of the impact to intrinsic safety compliance. Reference Project 70028530.
000070015718	2015-01-26	Evaluation to update Report 70013111 to include Class I, Division 1, Groups C and D; Class II, Division 1, Groups EFG and change Power Module pcb assembly, schematic, and the overall schematic. Also changes to the operation of the Long Range Radio. Additional funds to be requested for any testing determined required.
000070013111	2014-10-14	Evaluation to CSA-us certification of Model G1-SCBA accessories for CL I, Div 1, Groups CD T1.