



Certificate of Compliance

Certificate: 70013111 (064969_0_000)

Master Contract: 167534

Project: 70160817

Date Issued: 2017-12-22

Issued to: MSA - The Safety Company
1000 Cranberry Woods Dr
Cranberry Township, Pennsylvania 16066-5296
USA

Attention: Stephen Kancel

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



Issued by: Behzad Nejad
Behzad Nejad, P. Eng.

PRODUCTS

CLASS - C225803 - PROCESS CONTROL EQUIPMENT - Intrinsically Safe and Non-Incendive Systems - For Hazardous Locations

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: $-20^{\circ}\text{C} \leq T_a \leq +40^{\circ}\text{C}$.

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.



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- 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.

APPLICABLE REQUIREMENTS

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






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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
70160817	2017-12-22	Update report 70013111 to assess the followings: 1. Alternate construction changes coin cell battery from Panasonic BR1225 or BR1225A to Panasonic BR1632A, 2) Addition of the alternate construction for PWR MDL LRR G1 by removing the LRR (Large Range Radio) and its power supply circuit. 3) Changes in regards to non-protective resistors R59 (36.5K Ω , \pm 1%, 0.1W, SMT0805) and R65 (14.0K Ω , \pm 1%, 0.0625W, SMT0603). 4) Assess the spacing of the new power module printed circuit board. 5) Assessment of the alternate design per drawing SK3098-1414 for repair the real time click battery. 6) Multiple revised descriptive documents for the PCBs and mechanical assemblies.
70126701	2017-10-10	Update to Report 70013111 to assess multiple revised descriptive documents for the PCBs and mechanical assemblies (GCA-907).
70086340	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).
70077413	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.
70053933	2015-11-25	Update Report 7001311 to permit the use of alternate capacitors per the established CSA report component Substitution/ Interchangeability criteria.
70051920	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.
70041158	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.
70036627	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



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		review of the impact to intrinsic safety compliance. Reference Project 70028530.
70015718	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.
70013111	2014-10-14	Evaluation to CSA-us certification of Model G1-SCBA accessories for CL I, Div 1, Groups CD T1.