

Certificate of Conformity
Ex EQUIPMENTCertificate No.: **ANZEx 08.3018X**

Current Issue: 6

Date of Issue: 5 February 2018

Applicant: MSA – The Safety Company
1000 Cranberry Woods Drive
Cranberry Township PA 16066
United States of America

Equipment: Altair 4X Diffusion Multi-gas Detector

Type of Explosion Protection: Flameproof “d”, Intrinsic safety “ia”

Explosion Protection Marking: Ex ia I IP67
Ex ia da IIC T4 IP67 - When Combustible XCell Sensor is installed
Ex ia IIC T4 IP67 - When Combustible XCell Sensor is not installed.

*This certificate is granted subject to the conditions as set out in
Standards Australia/Standards New Zealand Miscellaneous Publication **MP87.1***

Signed for and on behalf of issuing body



Name & Position

Ujen Singh – Quality & Certification Manager

This certificate is not transferable and remains the property of the issuing body.

The status of this certificate can be confirmed through the database located at www.anzex.com.au

Certificate issued by:

TestSafe Australia
919 Londonderry Road, Londonderry NSW 2753 Australia

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**Additional
Manufacturing
Location(s):** None

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 60079-0:2011 Electrical apparatus for explosive gas atmospheres - Part 0: General requirements
IEC 60079-1:2014 Electrical apparatus for explosive gas atmospheres - Part 1: Flameproof enclosure 'd'
IEC 60079-11:2011 Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"

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

TEST & ASSESSMENT REPORTS:

The equipment listed has successfully met the examination and test requirements as recorded in:

Test Report No. & Issuing Body: 35610, 36022, TestSafe; CZ/FTZU/ExTR09.0023/02, FTZU

Quality Assessment Report No. & Issuing Body: FR/INE/QAR08.0011/06, INERIS

File Reference: 2017/018277

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Schedule**Equipment Description:**

The Altair 4X Multi-gas Detector is a 4 Gas instrument. It contains XCell series toxic electrochemical cell (one or two sensors), one XCell combustible cell, and one XCell oxygen electrochemical cell. It measures 75 mm by 120 mm by 35 mm. The body is made of RTP 2099 EX 118617 B material. The display is a mono-colour LCD (Philips PCF8533 series).

The rechargeable battery is Lithium polymer (Sony battery) – one cell. The battery is encapsulated in a plastic container with soft polyurethane based encapsulant.

Electrical Ratings/Parameters

None.

Specific Conditions of Use:

It is a condition of safe use that the input parameters for the battery charger, which may be connected only in a safe area, are shown below:

Maximum Charger Voltage U_m	6.7 V
Maximum Charger Current I_m	1.7 A

Variations Permitted by This Issue:

There are no changes on the equipment. The Ex component XCell was updated the referenced ATEX standard EN 60079-0 and removed the referenced ATEX and IECEx encapsulation – m standards on Page 3 of 23, added revision history to box in upper right corner of Page 1, and deleted revision history Page 24.

Manufacturer's Documents associated with this Issue:

Document Number	Pages / Sheets	Document Title	Revision	Date
SK3098-1085	23	Approval, XCell Ex Combustible Sensor, FTZU	2	21 Oct 2016

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History of Issues and Variations

Issue 0 dated 12 Mar 2008

Manufacturer's Documents associated with Issue 0:

Document Number	Pages / Sheets	Document Title	Revision	Date
SK3098-1038	21	4-Gas Detector, 4GD, Altair4, TestSafe	0	29 Nov 2007
SK3098-1059	1	Label, AS/NZS and IEC Approvals, Altair4	0	03 Jun 2008

Issue 1 dated 04 Jul 2008

Variations Permitted by Issue 1

➤ Adding an alternate case overmould material RTP 2099E X 118617 B (Black) to the apparatus.

This change has been assessed in Test Report 30309.

Manufacturer's Documents associated with the Issue 1:

Document Number	Pages / Sheets	Document Title	Revision	Date
SK3098-1038	11 of 21	4-Gas Detector, 4GD, Altair4, TestSafe	0A	05 May 2008

Issue 2 dated 24 Sep 2008

Variations Permitted by Issue 2

The drawing SK3098-1038 Rev.0 is replaced by drawing SK3098-1038 Rev.1. The changes are:

- Sheet 1, 2 & 5: Added illustration of missing non-protective resistor R94 (unmarked) in the combustible associated schematic. (Note: This information was accidentally left out on this schematic, but, the part was previously already on p.c. board artwork drawing sheet 19 which has remained unchanged, thus spacing analysis still remains unaffected).
- Sheet 3: Added maximum capacitance and minimum voltage rating of C12 in the BATT SAFETY SCHEMATIC (Note: This information was previously already noted on sheet 12).
- Sheet 4: Added R94, its specifications and its analysis of missing non-protective resistor R94 to the COMB CIRCUIT schematic.
- Sheet 11: Corrected ratings of 5 resistors to 0.125W for a typographical error. (Note: The correct values were previously already noted in the analysis contained within preceding sheets).
- Sheet 11: Corrected dimension of minimum wall (non-floor) thickness of the battery tray/carrier from 0.86 mm to 0.50 mm. (Note: The correct dimension was previously already noted on sheet 20).
- Sheet 11: Corrected revision of printed circuit board artwork from revision 2 to revision 4. (Note: The correct artwork revision was previously already noted on sheets 14 through 19).

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7. Sheet 11: Added the calibration cap anti-static material type.
8. Sheet 12: Corrected quantities of components from 3 to 5 in two places for typographical errors. (Note: There were previously already noted 5 parts for Q1, Q3, Q4, Q12, Q13 and D2, D6, D7, D12, D13).
9. Sheet 12: Added missing non-protective resistor R94. (Note: As in 1. above, this information was accidentally left out on this schematic, but, the part was previously already on p.c. board artwork drawing which has remained unchanged, thus spacing analysis still remains unaffected).
10. Sheet 21: Added optional double-sided adhesive tape between optional clip and instrument.
11. Sheet 21: Added illustration for optional calibration cup.
12. Sheet 11: Added RoHS compliant Littelfuse 0466.200 0.2A SMT alternate fuse having the same UL and CSA approval file numbers as the previous 0433.200 fuse.
13. Sheet 11: Added alternate static dissipative overmold material RTP2099 EX 118617 B BLK/BLK in two places and removed "IP 64 Minimum" in five places.

These changes have been assessed in Test Report 30699.

Manufacturer's Documents associated with the Issue 2:

Document Number	Pages / Sheets	Document Title	Revision	Date
SK3098-1038	21	4-Gas Detector, 4GD, Altair4, TestSafe	1	18 Jul 2008

Issue 3 dated 10 Sep 2010

Variations Permitted by Issue 3

Added new model Altair 4X to the certificate. Altair 4X is identical to Altair 4 only Altair 4X uses XCell sensors and has a different sensor circuit.

Altair 4X has been assessed in Test Report 32207.

Manufacturer's Documents associated with the Issue 3:

Document Number	Pages / Sheets	Document Title	Revision	Date
SK3098-1134	22	Altair4X, TestSafe, ANZEx	0	21 Jul 2010
SK3098-1157	1	Label, AS/NZS and IEC Approvals, Altair4X	0	01 Sep 2010
SK3098-1085	24	Approval, XCell Ex Combustible Sensor, FTZU	-	30 Mar 2010

Issue 4 dated 02 Aug 2012

Variations Permitted by Issue 4

The drawing SK3098-1134 Rev.0 is replaced by drawing SK3098-1134 Rev.1. The changes are:

1. The IR Transceiver (component designator U1) Sharp GP2W0110YP0F is being replaced by a similar device Vishay TFBS4650.

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2. Associated capacitor C6 decreased in nominal capacitance from 1.0 μ F to 0.1 μ F.
3. Protective resistor R7 36.5 Ω nominal, $\pm 1\%$ tolerance, 1 W rating, 2512 SMD has changed to 100 Ω nominal, $\pm 5\%$ tolerance, 1 W rating, 2512SMD. However, in the design requirement drawing, it is still described as $\geq 36.135 \Omega$ with no change.
4. A label with battery capacity and other information was added to the internal battery pack.
5. Corrections (no design changes) were made in regards to infallible via designations (circle-I) and colours used to describe the plated through holes for connecting to the gas sensors' sockets as shown on new sheets 15, 16, 17, 18, 19, & 20.

These changes have been assessed in Test Report 33787.

Manufacturer's Documents associated with the Issue 4:

Document Number	Pages / Sheets	Document Title	Revision	Date
SK3098-1134	22	Altair4X, TestSafe, ANZEx	1	06 Jun 2012

Issue 5 dated 06 Sep 2017

Variations Permitted by Issue 5

1. Company name changed to MSA – The Safety Company.
2. Update the standards to IEC 60079-0:2011, IEC 60079-1:2014, IEC 60079-11:2011 and IEC 60079-18:2009.
3. Removal of Altair 4 model.
4. Update of PCB from Rev. 5 to Rev. 6. On page 20 of drawing changed trace to tear drop pattern.
5. Charger model changed to SM19-6-NEBA-P5R-C1.

These changes have been assessed in Test Reports 35610 and 36022.

Manufacturer's Documents associated with the Issue 5:

Document Number	Pages / Sheets	Document Title	Revision	Date
SK3098-1134	22	Altair4X, TestSafe, ANZEx	2	04 Apr 2017