



EC-Type Examination Certificate

- (1)
(2) **Equipment or Protective Systems Intended for use
in Potentially Explosive Atmospheres
Directive 94/9/EC**

- (3) EC-Type Examination Certificate Number:

FTZÚ 08 ATEX 0340X

- (4) Equipment or protective system: **ALTAIR 5**
- (5) Manufacturer: **Mine Safety Appliances Co., Instrument Division**
- (6) Address: **P.O.Box 427, Pittsburgh, PA 15230;
1000 Cranberry Woods Drive, Cranberry Twp, PA 16066, U.S.A**
- (7) This equipment or protective system and any of acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.
- (8) The Physical Technical Testing Institute, notified body number 1026 in accordance with Article 9 of the Council Directive 94/9/EC of 23 March 1994, certifies that this equipment or protective system has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in confidential Report N°

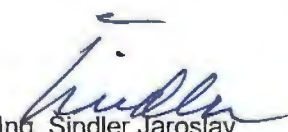
08/0340 dated 12.05.2009

- (9) Compliance with Essential Health and safety requirements has been assured by compliance with:
EN 60079-0:2006 EN 60079-1:2004 EN 60079-11:2007
- (10) If the sign „X“ is placed after the certificate number, it indicates that the equipment or protective system is subject to special conditions for safe use specified in the schedule to this certificate.
- (11) This EC-TYPE EXAMINATION CERTIFICATE relates only to the design, examination and testing of the specified equipment or protective system in accordance to the directive 94/9/EC. Further requirements of the Directive apply to the manufacturing process and supply of this equipment or protective system. These are not covered by this certificate.
- (12) The marking of the equipment or protective system shall include following:

 **II 2G Ex ia d IIC T3, T4**

This EC-Type Examination Certificate is valid till: **12.05.2014**

Responsible person:


Dipl. Ing. Sindler Jaroslav
Head of certification body



Date of issue: 12.05.2009

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Physical Technical Testing Institute
Ostrava-Radvanice

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(14) **EC-Type Examination Certificate N° FTZÚ 08 ATEX 0340X**

(15) Description of Equipment or Protective System:

The ALTAIR 5 is a portable, battery operated, hand-held device designed to monitor gases in ambient air and in the workplace via a diffusion barrier or internal sample draw pump. It is available with a maximum of four sensors which can display readings for five gases. The catalytic bead sensor has an explosion protection “flameproof enclosure” Ex d, certified by SIRA (SIRA 07ATEX1088X). The ALTAIR 5 provides audible, visual, and tactile alarms when predetermined levels of pertinent gas concentrations have been detected. The ALTAIR 5 comprises four printed circuit boards on which all of the electronic components are mounted. The PCBs and display are mounted inside a static dissipative moulded plastic enclosure.

The ALTAIR 5 is supplied:

- a) by one (1) encapsulated rechargeable 3.7V lithium-ion battery type Panasonic CGR18650DA which may be charged from chargers made available by MSA for use with this instrument or
- b) by three (3), self-contained, user-replaceable size “AA”, 1.5V alkaline batteries which may be of types:
 - 1, Varta High Energy 4906, LR6, MN1500,
 - 2, Energizer HP7 Stilo, E91, LR6, MN1500 or
 - 3, Duracell LR6, MN1500.

The temperature class of the equipment depends on the type of batteries used.

Parameters:

Charging contacts entity parameters

(for rechargeable battery): $U_m \leq 6.7 \text{ V}$

Ambient temperature range: $-20^\circ\text{C} \leq T_a \leq +50^\circ\text{C}$

Temperature class: T3 with Varta High Energy 4906, LR6, MN1500
T3 with Energizer HP7 Stilo, E91, LR6, MN1500
T4 with Panasonic CGR18650DA
T4 with Duracell LR6, MN1500


(16) Report No. : 08/0340 dated 12.05.2009

(17) Special conditions for safe use:

The ALTAIR 5 may be charged only in non-hazardous locations.

Responsible person:

Date of issue: 12.05.2009


Dipl. Ing. Šindler Jaroslav
Head of certification body



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(14) **EC-Type Examination Certificate N° FTZÚ 08 ATEX 0340X**

(18) Essential Health and Safety Requirements:

Essential health and safety requirement of Directive 94/9/EC are covered by the standard mentioned in (9), according which the product was verified and in the manufacturer's instruction for use.

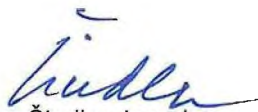
(19) List of Documentation:

- [1] Operating Manual No. 10094177/00 Y-HLS (76 pages)
- [2] Certificate SIRA 07 ATEX 1088X, Issue: 0 (2 pages), Date: 21.05.2007
- [3] Drawing No.: SK3098-1114, Rev 0 (3 pages), Date: 21.04.2009
- [4] Drawing No.: 10095900, Rev 0 (3 pages), Date: 07.07.2008
- [5] Drawing No.: 10095899, Rev 0 (3 pages), Date: 07.07.2008
- [6] Drawing No.: 10085785, Rev 1 (1 page), Date: 12.06.2008
- [7] Drawing No.: SK3098-1125, Rev 0 (38 pages), Date: 01.04.2009
- [8] Drawing No.: 10085926, Rev 4 (1 page), Date: 14.08.2008
- [9] Drawing No.: 10083583, Rev 5 (1 page), Date: 13.08.2008
- [10] Drawing No.: 7-7098-1, Rev 4 (1 page), Date: 13.08.2008
- [11] Drawing No.: 10083580, Rev 2 (1 page), Date: 25.04.2008
- [12] Drawing No.: 10083590, Rev 4 (1 page), Date: 14.08.2008
- [13] Drawing No.: 10083582, Rev 4 (1 page), Date: 15.07.2008
- [14] Drawing No.: 10025664, Rev 0 (1 page), Date: 29.09.2000
- [15] Drawing No.: 10083585, Rev 3 (1 page), Date: 09.07.2008
- [16] Schematic No.: SK3073-1048, Rev 4 (4 pages), Date: 11.02.2009
- [17] Bill of Materials No.: 10102322, Rev 1 (1 page), Date: 06.04.2009
- [18] Schematic No.: DG6214500, Rev 0 (2 pages), Date: 30.10.2007
- [19] Bill of Materials No.: DG6214800, Rev 0 (2 pages), Date 03.08.2007
- [20] Drawing No.: DG6214000, Rev 0 (1 page), Date: 30.10.2007
- [21] Schematic No.: SK3014-1013, Rev 0 (1 page), Date: 06.11.2008
- [22] Drawing No.: 1099650, Rev 2 (4 pages), Date: 10.03.2009
- [23] Schematic No.: SK3014-1007, Rev 3 (1 page), Date: 03-09-2007
- [24] Bill of Materials No.: 10080501, Rev 6 (1 page), Date: 04.08.2008
- [25] Schematic No.: SK3073-1047, Rev 7 (1 page), Date: 01.08.2008
- [26] Bill of Materials No.: 10078690, Rev 6 (1 page), Date: 31.07.2008
- [27] Schematic, Bill of Materials No.: 10078706, Rev 1 (1 page), Date: 17.06.2008

The documentation [1] to [27] was verified by FTZU dated 11.05.2009.

Responsible person:

Date of issue: 12.05.2009


Dipl. Ing. Šindler Jaroslav

Head of certification body



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(1) **Supplement No. 1 to
EC-Type Examination Certificate**

(2) **Equipment or Protective Systems Intended for use
in Potentially Explosive Atmospheres
Directive 94/9/EC**

(3) EC-Type Examination Certificate Number:

FTZÚ 08 ATEX 0340X

(4) Equipment or protective system: **ALTAIR 5**

(5) Manufacturer: **Mine Safety Appliances Co. (Instrument Division)**

(6) Address: **P.O.Box 427, Pittsburgh, PA 15230;
1000 Cranberry Woods Drive, Cranberry Twp, PA 16066, U.S.A**

(7) This supplement of certificate is valid for: - modification of certified apparatus

(8) Modification of certified apparatus (protective system) and any of its approved variants are specified in documentation, list of which is mentioned in schedule of this certificate.

(9) This supplement to type examination certificate is valid only for type examination of design and construction of product sample in accordance with Annex 3 (Paragraph 6) of Directive No. 94/9/EC. The Directive contains other requirements, which manufacturer shall fulfil before products are place on market or introduce in service.

(10) Safety requirements of modified parts were fulfilled by satisfying the following standards:

EN 60079-0:2006; EN 60079-1:2004; EN 60079-11:2007


(11) Marking of equipment shall contain symbols:

 **II 2G Ex ia d IIC T3, T4**


(12) This type examination certificate is valid till: **12. 05. 2014**

Responsible person:

Date of issue: **17.06.2009**


Dipl. Ing. Šindler Jaroslav
Head of certification body




Number of pages: 2
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Physical Technical Testing Institute
Ostrava-Radvanice

(13)

Schedule

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**Supplement No. 1 to
EC-Type Examination Certificate N° FTZÚ 08 ATEX 0340X**

(15) Description of variation to the Equipment or Protective System:

Variation one, to permit:

- a) Minor firmware changes.

The changes do neither affect the intrinsic safety nor the ingress protection of apparatus.

(16) Report No. : 08/0340/1 (2 pages), date 17.06.2009

(17) Special conditions for safe use: see the basic certificate

(18) Essential Health and Safety Requirements: see the basic certificate

(19) List of documentation:

[1] Drawing No.: 10099650, Rev 3 (4 pages), Date: 01.06.2009

Date of verification of documentation by FTZÚ: 17.06.2009

Responsible person:

Date of issue: 17.06.2009

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(1) **Supplement No. 2 to
EC-Type Examination Certificate**

(2) **Equipment or Protective Systems Intended for use
in Potentially Explosive Atmospheres
Directive 94/9/EC**

(3) EC-Type Examination Certificate Number:

FTZÚ 08 ATEX 0340X

(4) Equipment or protective system: **ALTAIR 5**

(5) Manufacturer: **Mine Safety Appliances Co. (Instrument Division)**

(6) Address: **P.O.Box 427, Pittsburgh, PA 15230;
1000 Cranberry Woods Drive, Cranberry Twp, PA 16066, U.S.A**

(7) This supplement of certificate is valid for: - modification of certified apparatus

(8) Modification of certified apparatus (protective system) and any of its approved variants are specified in documentation, list of which is mentioned in schedule of this certificate.

(9) This supplement to type examination certificate is valid only for type examination of design and construction of product sample in accordance with Annex 3 (Paragraph 6) of Directive No. 94/9/EC. The Directive contains other requirements, which manufacturer shall fulfil before products are place on market or introduce in service.

(10) Safety requirements of modified parts were fulfilled by satisfying the following standards:

EN 60079-0:2006 EN 60079-1:2004 EN 60079-11:2007

(11) Marking of equipment shall contain symbols:

 **II 2G Ex ia d IIC T3, T4**

(12) This type examination certificate is valid till: **12.05.2014**

Responsible person:

Dipl. Ing. Šindler Jaroslav
Head of certification body



Date of issue: **30.09.2009**



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**Supplement No. 2 to
EC-Type Examination Certificate N° FTZÚ 08 ATEX 0340X**

(15) Description of variation to the Equipment or Protective System:

Variation two, to permit:

a) Minor changes in the documentation mentioned in clause (19) of this supplement.

The changes do neither affect the intrinsic safety.

(16) Report No. : 08/0340/2, date 30.09.2009 - 2 pages

(17) Special conditions for safe use: see the basic certificate

(18) Essential Health and Safety Requirements: see the basic certificate

(19) List of documentation:

[1] Drawing No.: 10099650, Rev 4 (3 pages), Date: 29.09.2009

Date of verification of documentation by FTZÚ: 30.09.2009

Responsible person:

Date of issue: 30.09.2009


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(1) **Supplement No. 3 to
EC-Type Examination Certificate**

(2) **Equipment or Protective Systems Intended for use
in Potentially Explosive Atmospheres
Directive 94/9/EC**

(3) EC-Type Examination Certificate Number:

FTZÚ 08 ATEX 0340X

(4) Equipment or protective system: **ALTAIR 5**

(5) Manufacturer: **Mine Safety Appliances Co. (Instrument Division)**

(6) Address: **P.O.Box 427, Pittsburgh, PA 15230;
1000 Cranberry Woods Drive, Cranberry Twp, PA 16066, U.S.A**

(7) This supplement of certificate is valid for: - performance tests

(8) Modification of certified apparatus (protective system) and any of its approved variants are specified in documentation, list of which is mentioned in schedule of this certificate.

(9) This supplement to type examination certificate is valid only for type examination of design and construction of product sample in accordance with Annex 3 (Paragraph 6) of Directive No. 94/9/EC. The Directive contains other requirements, which manufacturer shall fulfil before products are place on market or introduce in service.

(10) Safety requirements of modified parts were fulfilled by satisfying the following standards:


EN 60079-29-1:2007, EN 50104:2002+A1:2004, EN 50270:2006, EN 50271:2001

(11) Marking of equipment shall contain symbols:

 **II 2G Ex ia d IIC T3, T4**

(12) This type examination certificate is valid till: **12.05.2014**

Responsible person:


Dipl. Ing. Šindler Jaroslav
Head of certification body



Date of issue: **31.08.2010**

Number of pages: **2**
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Physical Technical Testing Institute
Ostrava-Radvanice

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(14)

Supplement No. 3 to
EC-Type Examination Certificate N° FTZÚ 08 ATEX 0340X

(15) Description of variation to the Equipment or Protective System:

Variation three, to permit:

The equipment has been subjected to the tests prescribed in the standards listed in clause (10) for flammable gases - CH₄, H₂, C₃H₈, C₃H₁₂ and O₂ and complies with their requirements.

(16) Report No. : 08/0340/3, date 31.08.2010

(17) Special conditions for safe use: are added:

17.1 In event of combustible sensor overrange the apparatus shall be exposed to fresh air for 20 minutes minimum and then the fresh air setup procedure shall be done.

(18) Essential Health and Safety Requirements: see the basic certificate

(19) List of documentation: are added:

- [1] Operating manual, No.10094177, rev. 0 with manual addendum No.10103427, rev.1
- [2] WUSB Operating Manual - Supplementary Information No.10102623, rev. 0
- [3] Safety Discussion ALTAIR 5, ALTAIR 5iR + program flow, Rev.0, Date: 11.06.2009
- [4] Safety critical source codes *.c and *.h for ALTAIR 5 - page 39 of SK3098-1125 rev.1, Date: 26.08.2010

Date of verification of documentation by FTZÚ: 31.08.2010

Responsible person:

Dipl. Ing. Šindler Jaroslav

Head of certification body



Date of issue: 31.08.2010

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(1) **Supplement No. 4 to
EC-Type Examination Certificate**

(2) **Equipment or Protective Systems Intended for use
in Potentially Explosive Atmospheres
Directive 94/9/EC**

(3) EC-Type Examination Certificate Number:

FTZÚ 08 ATEX 0340X

(4) Equipment or protective system: **ALTAIR 5**

(5) Manufacturer: **Mine Safety Appliances Co. (Instrument Division)**

(6) Address: **P.O.Box 427, Pittsburgh, PA 15230;
1000 Cranberry Woods Drive, Cranberry Twp, PA 16066, U.S.A**

(7) This supplement of certificate is valid for: - modification of certified apparatus

(8) Modification of certified apparatus (protective system) and any of its approved variants are specified in documentation, list of which is mentioned in schedule of this certificate.

(9) This supplement to type examination certificate is valid only for type examination of design and construction of product sample in accordance with Annex 3 (Paragraph 6) of Directive No. 94/9/EC. The Directive contains other requirements, which manufacturer shall fulfil before products are place on market or introduce in service.

(10) Safety requirements of modified parts were fulfilled by satisfying the following standards:

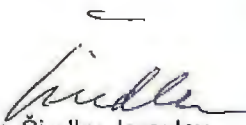
EN 60079-0:2006 EN 60079-11:2007

(11) Marking of equipment shall contain symbols:

 **II 2G Ex ia d IIC T3, T4**


(12) This type examination certificate is valid till: **12.05.2014**

Responsible person:


Dipl. Ing. Šindler Jaroslav
Head of certification body



Date of issue: **08.10.2010**


Number of pages: 2
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Physical Technical Testing Institute
Ostrava-Radvanice

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Schedule

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Supplement No. 4 to
EC-Type Examination Certificate N° FTZÚ 08 ATEX 0340X

(15) Description of variation to the Equipment or Protective System:

Variation four, to permit:

a) Minor changes in the documentation mentioned in clause (19) of this supplement.

The changes do not affect the intrinsic safety.

(16) Report No. : 08/0340/4, date 08.10.2010

(17) Special conditions for safe use: remain unchanged

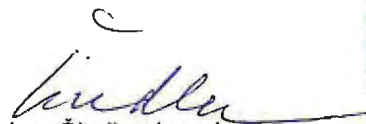
(18) Essential Health and Safety Requirements: see the basic certificate

(19) List of documentation:

[1] Drawing No.: DG6214000, Rev 01 (2 pages), Date: 28.01.2010

Date of verification of documentation by FTZÚ: 08.10.2010

Responsible person:


Dipl. Ing. Šindler Jaroslav

Head of certification body



Date of issue: 08.10.2010

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(1) **Supplement No. 5 to
EC-Type Examination Certificate**

(2) **Equipment or Protective Systems Intended for use
in Potentially Explosive Atmospheres
Directive 94/9/EC**

(3) EC-Type Examination Certificate Number:

FTZÚ 08 ATEX 0340X

(4) Equipment or protective system: **ALTAIR 5**

(5) Manufacturer: **Mine Safety Appliances Co. (Instrument Division)**

(6) Address: **P.O.Box 427, Pittsburgh, PA 15230;
1000 Cranberry Woods Drive, Cranberry Twp, PA 16066, U.S.A**

(7) This supplement of certificate is valid for: - new model ALTAIR 5X

(8) Modification of certified apparatus (protective system) and any of its approved variants are specified in documentation, list of which is mentioned in schedule of this certificate.

(9) This supplement to type examination certificate is valid only for type examination of design and construction of product sample in accordance with Annex 3 (Paragraph 6) of Directive No. 94/9/EC. The Directive contains other requirements, which manufacturer shall fulfil before products are place on market or introduce in service.

(10) Safety requirements of modified parts were fulfilled by satisfying the following standards:


**EN 60079-0:2009, EN 60079-1:2007, EN 60079-11:2007,
EN 60079-18:2009, EN 60079-26:2007, EN 50303:2000**

(11) Marking of equipment shall contain symbols:

**I M1 Ex ia I Ma
II 1G Ex ia IIC T3,T4 Ga
II 2G Ex d ia mb IIC T3,T4 Gb**

(12) This type examination certificate is valid till: **12.05.2014**

Responsible person:


Dipl. Ing. Šindler Jaroslav
Head of certification body



Date of issue: **16.02.2011**

Number of pages: **2**
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**Physical Technical Testing Institute
Ostrava-Radvanice**

(13) **Schedule**

(14) **Supplement No. 5 to
EC-Type Examination Certificate N° FTZÚ 08 ATEX 0340X**

(15) Description of variation to the Equipment or Protective System:

Variation five, to permit:

1. The formation of the new model ALTAIR 5X which replaces the analog gas sensors used in the original ALTAIR 5 and on-board sensor circuitry with MSA XCell™ series of sensors (FTZÚ 09ATEX0123U and FTZÚ 09ATEX0223U) each containing the associated analog and digital circuitry and each now having a digital input and output.
2. The new model ALTAIR 5X also adds a Zone 0 certification for the Group II instrument configuration whereby the combustible XCell™Ex sensor is not installed.
3. The new model ALTAIR 5X was evaluated for Group I, category M1 certification.
4. Marking of the new model ALTAIR 5X was updated.

The further description and parameters to the new model ALTAIR 5X are the same as for the basic model ALTAIR 5.

(16) Report No. : 08/0340/5, date 16.02.2011

(17) Special conditions for safe use: are added:

- 17.1 The new model ALTAIR 5X shall not be used in Zone 0 when the combustible XCell™Ex sensor is installed.
- 17.2 The new model ALTAIR 5X shall only be charged and opened in a non-hazardous area.

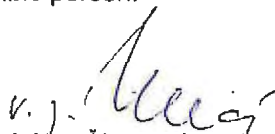
(18) Essential Health and Safety Requirements: see the basic certificate

(19) List of documentation:

- [1] Instruction manual No.: 10116951, Rev 0 (90 pages), Date: 11.02.2011
- [2] Drawing No.: SK3098-1184, Rev 0 (66 pages), Date: 16.12.2010
- [3] Drawing No.: SK3098-1185, Rev 0 (1 pages), Date: 05.01.2011

Date of verification of documentation by FTZÚ: 16.02.2011

Responsible person:


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Date of issue: 16.02.2011

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(1) **Supplement No. 6 to
EC-Type Examination Certificate**

(2) **Equipment or Protective Systems Intended for use
in Potentially Explosive Atmospheres
Directive 94/9/EC**

(3) EC-Type Examination Certificate Number:

FTZÚ 08 ATEX 0340X

(4) Equipment or protective system: **ALTAIR 5**

(5) Manufacturer: **Mine Safety Appliances Co. (Instrument Division)**

(6) Address: **P.O.Box 427, Pittsburgh, PA 15230;
1000 Cranberry Woods Drive, Cranberry Twp, PA 16066, U.S.A**

(7) This supplement of certificate is valid for: - documentation changes
- firmware changes


(8) Modification of certified apparatus (protective system) and any of its approved variants are specified in documentation, list of which is mentioned in schedule of this certificate.

(9) This supplement to type examination certificate is valid only for type examination of design and construction of product sample in accordance with Annex 3 (Paragraph 6) of Directive No. 94/9/EC. The Directive contains other requirements, which manufacturer shall fulfil before products are place on market or introduce in service.

(10) Safety requirements of modified parts were fulfilled by satisfying the following standards:


EN 60079-0:2009, EN 50271:2001

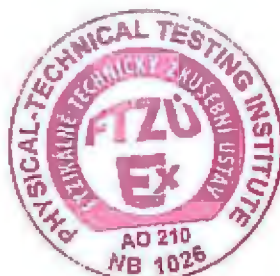
(11) Marking of equipment shall contain symbols:

 **I M1 Ex ia I Ma
II 1G Ex ia IIC T3,T4 Ga
II 2G Ex d ia mb IIC T3,T4 Gb**

(12) This type examination certificate is valid till: **12.05.2014**

Responsible person:


Dipl. Ing. Šindler Jaroslav
Head of certification body



Date of issue: **11.04.2011**

Number of pages: **2**

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Physical Technical Testing Institute
Ostrava-Radvanice

(13)

Schedule

(14)

Supplement No. 6 to
EC-Type Examination Certificate N° FTZÚ 08 ATEX 0340X

(15) Description of variation to the Equipment or Protective System:

Variation six, to permit:

- a) Minor changes of the software code prescribed in the documentation in the point (19).
- b) Minor changes of the documentation ~ WUSB Operation manual.
- c) Minor changes of the overmold marking and battery pack numbers for model ALTAIR 5X.

Technical description has not been changed. These changes don't have influence on the safety of the apparatus or the detection performance.

(16) Report No. : 08/0340/6, date 11.04.2011

(17) Special conditions for safe use: remain unchanged


(18) Essential Health and Safety Requirements: see the basic certificate

(19) List of documentation:

- [1] WUSB Operating Manual - Supplementary Information No.10102623, rev.1, Date: 10.03.2011
- [2] Drawings No SK3098-1125, rev.2, date: 10.03.2011 - 36 pages
- [3] Drawings No.SK3098-1184, rev.1, date: 25.03.2011 - 66 pages

Date of verification of documentation by FTZÚ: 11.04.2011

Responsible person:


Dipl. Ing. Šindler Jaroslav
Head of certification body



Date of issue: 11.04.2011

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(1) **Supplement No. 7 to
EC-Type Examination Certificate**

(2) **Equipment or Protective Systems Intended for use
in Potentially Explosive Atmospheres
Directive 94/9/EC**

(3) EC-Type Examination Certificate Number:

FTZÚ 08 ATEX 0340X

(4) Equipment or protective system: **ALTAIR 5**

(5) Manufacturer: **Mine Safety Appliances Co. (Instrument Division)**

(6) Address: **P.O.Box 427, Pittsburgh, PA 15230;
1000 Cranberry Woods Drive, Cranberry Twp, PA 16066, U.S.A**

(7) This supplement of certificate is valid for: - firmware changes

(8) Modification of certified apparatus (protective system) and any of its approved variants are specified in documentation, list of which is mentioned in schedule of this certificate.

(9) This supplement to type examination certificate is valid only for type examination of design and construction of product sample in accordance with Annex 3 (Paragraph 6) of Directive No. 94/9/EC. The Directive contains other requirements, which manufacturer shall fulfil before products are place on market or introduce in service.

(10) Safety requirements of modified parts were fulfilled by satisfying the following standards:

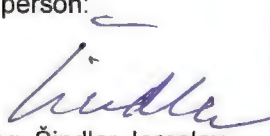
EN 60079-0:2009, EN 50271:2001

(11) Marking of equipment shall contain symbols:

**I M1 Ex ia I Ma
II 1G Ex ia IIC T3,T4 Ga
II 2G Ex d ia mb IIC T3,T4 Gb**

(12) This type examination certificate is valid till: **12.05.2014**

Responsible person:


Dipl. Ing. Šindler Jaroslav
Head of certification body



Date of issue: 03.06.2011

Number of pages: 2
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**Supplement No. 7 to
EC-Type Examination Certificate N° FTZÚ 08 ATEX 0340X**

(15) Description of variation to the Equipment or Protective System:

Variation seven, to permit:

a) Minor changes of the software code prescribed in the documentation in the point (19).

Technical description has not been changed. These changes don't have influence on the safety of the apparatus or the detection performance.

(16) Report No. : 08/0340/7, date 03.06.2011

(17) Special conditions for safe use: remain unchanged

(18) Essential Health and Safety Requirements: remain unchanged

(19) List of documentation:

[1] Drawings No SK3098-1125, rev.3, date: 18.05.2011 - 39 pages

[2] Safety critical source code util.c for ALTAIR 5

Date of verification of documentation by FTZÚ: 03.06.2011

Responsible person:

Dipl. Ing. Šindler Jaroslav

Head of certification body



Date of issue: 03.06.2011

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(1) **Supplement No. 8 to
EC-Type Examination Certificate**

(2) **Equipment or Protective Systems Intended for use
in Potentially Explosive Atmospheres
Directive 94/9/EC**

(3) EC-Type Examination Certificate Number:

FTZÚ 08 ATEX 0340X

(4) Equipment or protective system: **ALTAIR 5**

(5) Manufacturer: **Mine Safety Appliances Co. (Instrument Division)**

(6) Address: **P.O.Box 427, Pittsburgh, PA 15230;
1000 Cranberry Woods Drive, Cranberry Twp, PA 16066, U.S.A**

(7) This supplement of certificate is valid for: - modification of certified equipment

(8) Modification of certified apparatus (protective system) and any of its approved variants are specified in documentation, list of which is mentioned in schedule of this certificate.

(9) This supplement to type examination certificate is valid only for type examination of design and construction of product sample in accordance with Annex 3 (Paragraph 6) of Directive No. 94/9/EC. The Directive contains other requirements, which manufacturer shall fulfil before products are place on market or introduce in service.

(10) Safety requirements of modified parts were fulfilled by satisfying the following standards:


EN 60079-0:2006, EN 60079-11:2007

(11) Marking of equipment shall contain symbols:

 **II 2G Ex ia d IIC T3 , T4**


(12) This type examination certificate is valid till: **12.05.2014**

Responsible person:


Dipl. Ing. Šindler Jaroslav
Head of certification body



Date of issue: **11.07.2011**


Number of pages: 2
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Physical Technical Testing Institute
Ostrava-Radvanice

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**Supplement No. 8 to
EC-Type Examination Certificate N° FTZÚ 08 ATEX 0340X**

(15) Description of variation to the Equipment or Protective System:

Variation eight, to permit:

a) Minor change of the schematic diagram prescribed in the documentation in the point (19).

Technical description has not been changed. This change doesn't have influence on the safety of the apparatus or the detection performance.

(16) Report No. : 08/0340/8, date 11.07.2011

(17) Special conditions for safe use: remain unchanged

(18) Essential Health and Safety Requirements: remain unchanged

(19) List of documentation:

[1] Drawings No SK3073-1048, rev.5, date: 21.06.2011 - 4 pages

[2] Drawings No 10102322, rev.2, date: 21.06.2011 - 2 pages

Date of verification of documentation by FTZÚ: 11.07.2011

Responsible person:

A handwritten signature in blue ink, appearing to read 'Šindler'.

Dipl. Ing. Šindler Jaroslav

Head of certification body



Date of issue: 11.07.2011

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Physical Technical Testing Institute
- Ostrava-Radvanice



(1) **Supplement No. 9 to
EC-Type Examination Certificate**

(2) **Equipment or Protective Systems Intended for use
in Potentially Explosive Atmospheres
Directive 94/9/EC**

(3) EC-Type Examination Certificate Number:

FTZÚ 08 ATEX 0340X

(4) Equipment or protective system: **ALTAIR 5**

(5) Manufacturer: **Mine Safety Appliances Co. (Instrument Division)**

(6) Address: **P.O.Box 427, Pittsburgh, PA 15230;**

1000 Cranberry Woods Drive, Cranberry Twp, PA 16066, U.S.A

(7) This supplement of certificate is valid for: - minor changes of equipment model ALTAIR5X

(8) Modification of certified apparatus (protective system) and any of its approved variants are specified in documentation, list of which is mentioned in schedule of this certificate.

(9) This supplement to type examination certificate is valid only for type examination of design and construction of product sample in accordance with Annex 3 (Paragraph 6) of Directive No. 94/9/EC. The Directive contains other requirements, which manufacturer shall fulfil before products are place on market or introduce in service.

(10) Safety requirements of modified parts were fulfilled by satisfying the following standards:

EN 60079-0:2009, EN 60079-11:2007

(11) Marking of equipment shall contain symbols:

 **I M1 Ex ia I Ma
II 1G Ex ia IIC T3,T4 Ga
II 2G Ex d ia mb IIC T3,T4 Gb**

(12) This type examination certificate is valid till: **12.05.2014**

Responsible person:

Dipl. Ing. Šindler Jaroslav
Head of certification body



Date of issue: 09.08.2011

Number of pages: 2

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**Supplement No. 9 to
EC-Type Examination Certificate N° FTZÚ 08 ATEX 0340X**

(15) Description of variation to the Equipment or Protective System:

Variation nine, to permit:

- a) Minor changes of the equipment model ALTAIR 5X prescribed in the documentation in the point (19).

This change doesn't have influence on the safety of the apparatus or the detection performance.

(16) Report No. : 08/0340/9, date 09.08.2011

(17) Special conditions for safe use: remain unchanged

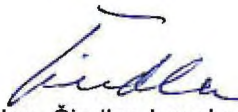
(18) Essential Health and Safety Requirements: see basic certificate

(19) List of documentation:

[1] Drawings No.: SK3098-1184, rev. 2, (75 sheets), dated 06.07.2011

Date of verification of documentation by FTZÚ: 09.08.2011

Responsible person:


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Head of certification body



Date of issue: 09.08.2011

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(1) **Supplement No. 10 to
EC-Type Examination Certificate**

(2) **Equipment or Protective Systems Intended for use
in Potentially Explosive Atmospheres
Directive 94/9/EC**

(3) EC-Type Examination Certificate Number:

FTZÚ 08 ATEX 0340X

(4) Equipment or protective system: **ALTAIR 5**

(5) Manufacturer: **Mine Safety Appliances Company**

(6) Address: **1000 Cranberry Woods Drive, Cranberry Twp, PA 16066, U.S.A.**

(7) This supplement of certificate is valid for: - minor firmware changes of equipment
- modification of name and address of manufacturer

(8) Modification of certified apparatus (protective system) and any of its approved variants are specified in documentation, list of which is mentioned in schedule of this certificate.

(9) This supplement to type examination certificate is valid only for type examination of design and construction of product sample in accordance with Annex 3 (Paragraph 6) of Directive No. 94/9/EC. The Directive contains other requirements, which manufacturer shall fulfil before products are placed on market or introduced in service.

(10) Safety requirements of modified parts were fulfilled by satisfying the following standards:


EN 60079-0:2006, EN 50271:2001

(11) Marking of equipment shall contain symbols:

Ex II 2G Ex ia d IIC T3, T4

(12) This type examination certificate is valid till: **12.05.2014**

Responsible person:


Dipl. Ing. Šindler Jaroslav
Head of certification body



Date of issue: 14.11.2011

Number of pages: 2

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Supplement No. 10 to
EC-Type Examination Certificate N° FTZÚ 08 ATEX 0340X

(15) Description of variation to the Equipment or Protective System:

Variation ten, to permit:

- a) Minor changes of the firmware prescribed in the documentation in the point (19).
- b) Due to company restructuring, manufacturer will no longer be recognized at their manufacturing facility as the "Instrument Division" and can just be shown as Mine Safety Appliances Company. Also, the "P.O. Box 427, Pittsburgh, PA 15230" address will no longer be used.

Technical description has not been changed. These changes don't have influence on the safety of the apparatus or the detection performance.

(16) Report No. : 08/0340/10, date 14.11.2011

(17) Special conditions for safe use: remain unchanged

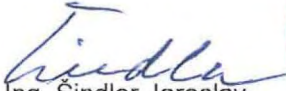
(18) Essential Health and Safety Requirements: see basic certificate

(19) List of documentation:

- [1] Drawings No.: SK3098-1125, rev. 4, (39 sheets), dated 19.10.2011
- [2] Software Change Report Altair 5, rev. 1.01.0004, (3 sheets), dated 14.09.2011
- [3] Source Code Change Report Altair 5, rev. 1.00.0052, (7 sheets), dated 19.10.2011

Date of verification of documentation by FTZÚ: 14.11.2011

Responsible person:


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Head of certification body



Date of issue: 14.11.2011

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(1) **Supplement No. 11 to
EC-Type Examination Certificate**

(2) **Equipment or Protective Systems Intended for use
in Potentially Explosive Atmospheres
Directive 94/9/EC**

(3) EC-Type Examination Certificate Number:

FTZÚ 08 ATEX 0340X

(4) Equipment or protective system: **ALTAIR 5**

(5) Manufacturer: **Mine Safety Appliances Company**

(6) Address: **1000 Cranberry Woods Drive, Cranberry Twp, PA 16066, U.S.A.**

(7) This supplement of certificate is valid for: - performance tests of equipment model ALTAIR 5X

(8) Modification of certified apparatus (protective system) and any of its approved variants are specified in documentation, list of which is mentioned in schedule of this certificate.

(9) This supplement to type examination certificate is valid only for type examination of design and construction of product sample in accordance with Annex 3 (Paragraph 6) of Directive No. 94/9/EC. The Directive contains other requirements, which manufacturer shall fulfil before products are place on market or introduce in service.

(10) Safety requirements of modified parts were fulfilled by satisfying the following standards:

EN 60079-29-1:2007, EN 50104:2010, EN 50270:2006, EN 50271:2001

(11) Marking of equipment shall contain symbols:

 **I M1 Ex ia I Ma
II 1G Ex ia IIC T3,T4 Ga
II 2G Ex d ia mb IIC T3,T4 Gb**

(12) This type examination certificate is valid till: **12.05.2014**

Responsible person:

Dipl. Ing. Šindler Jaroslav

Head of certification body



Date of issue: 22.12.2011

Number of pages: 2

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**Supplement No. 11 to
EC-Type Examination Certificate N° FTZÚ 08 ATEX 0340X**

(15) Description of variation to the Equipment or Protective System:

Variation eleven, to permit:

- a) The equipment model ALTAIR 5X has been subjected to the tests prescribed in the standards listed in clause (10) for flammable gases in range 0-100% LEL for Group I: CH₄ and Group II: CH₄, H₂, C₃H₈, C₄H₁₀, C₅H₁₂ and in range 0-25% vol. O₂ and complies with their requirements.

(16) Report No. : 08/0340/11, date 22.12.2011

(17) Special conditions for safe use:

17.1 The warm-up time for oxygen is 150 seconds.

(18) Essential Health and Safety Requirements: see basic certificate

(19) List of documentation: are added:

- [1] Operating manual, No.10116951, Rev.0, 91 sheets - EN version, Date: 21.12.2011
- [2] Drawings No.: SK3098-1184, Rev.3, 75 sheets, Date: 07.11.2011
- [3] Source Code comparison ALTAIR 5X ver. 1.09.02, Rev.1.00.0184, 53 sheets, Date: 28.10.2011
- [4] Report on Impacts of SW Changes ALTAIR 5X ver. 1.09.02, Rev.1.00.0091, 5 sheets, Date: 07.11.2011
- [5] Firmware Flow Diagram, No. SK3098-1218, Rev.0, 12 sheets, Date: 07.10.2011
- [6] Safety Discussion, No. SK3098-1217, Rev.0, 13 sheets, Date: 07.10.2011

Date of verification of documentation by FTZÚ: 22.12.2011

Responsible person:

Dipl. Ing. Šindler Jaroslav

Head of certification body



Date of issue: 22.12.2011

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(1) **Supplement No. 12 to
EC-Type Examination Certificate**

(2) **Equipment or Protective Systems Intended for use
in Potentially Explosive Atmospheres
Directive 94/9/EC**

(3) EC-Type Examination Certificate Number:

FTZÚ 08 ATEX 0340X

(4) Equipment or protective system: **ALTAIR 5**

(5) Manufacturer: **Mine Safety Appliances Company**

(6) Address: **1000 Cranberry Woods Drive, Cranberry Twp, PA 16066, U.S.A.**

(7) This supplement of certificate is valid for: - minor firmware changes of equipment

(8) Modification of certified apparatus (protective system) and any of its approved variants are specified in documentation, list of which is mentioned in schedule of this certificate.

(9) This supplement to type examination certificate is valid only for type examination of design and construction of product sample in accordance with Annex 3 (Paragraph 6) of Directive No. 94/9/EC. The Directive contains other requirements, which manufacturer shall fulfill before products are place on market or introduce in service.

(10) Safety requirements of modified parts were fulfilled by satisfying the following standards:

EN 60079-0:2006, EN 50271:2001

(11) Marking of equipment shall contain symbols:

 **II 2G Ex ia d IIC T3, T4**

(12) This type examination certificate is valid till: **12.05.2014**

Responsible person:

Dipl. Ing. Lukáš Martinák
Head of certification body



Date of issue: 12.03.2012

Number of pages: 2
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**Supplement No. 12 to
EC-Type Examination Certificate N° FTZÚ 08 ATEX 0340X**

(15) Description of variation to the Equipment or Protective System:

Variation twelve, to permit:

a) Minor changes of the firmware prescribed in the documentation in the point (19).

Technical description has not been changed. These changes do not have influence on the safety of the apparatus or the detection performance.

(16) Report No.: 08/0340/12, dated 12.03.2012

(17) Special conditions for safe use: remain unchanged

(18) Essential Health and Safety Requirements: see basic certificate

(19) List of documentation:

[1] Drawings No.: SK3098-1125, rev. 5, (39 sheets), dated 01.02.2012

Responsible person:

Dipl. Ing. Lukáš Martinák
Head of certification body



Date of issue: 12.03.2012

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(1) **Supplement No. 13 to
EC-Type Examination Certificate**

(2) **Equipment or Protective Systems Intended for Use
in Potentially Explosive Atmospheres
(Directive 94/9/EC)**

(3) EC-Type Examination Certificate Number:

FTZÚ 08 ATEX 0340X

(4) Equipment or protective system: **ALTAIR 5**

(5) Manufacturer: **Mine Safety Appliances Company**

(6) Address: **1000 Cranberry Woods Drive, Cranberry Twp, PA 16066, U.S.A.**

(7) This supplement of certificate is valid for: - modification of model ALTAIR 5X

(8) Modification of certified apparatus (protective system) and any of its approved variants are specified in documentation, list of which is mentioned in schedule of this certificate.

(9) This supplement to EC-Type Examination Certificate is valid only for type examination of design and construction of product sample in accordance with Annex 3 (Paragraph 6) of Directive No. 94/9/EC. The Directive contains another requirements, which manufacturer shall fulfil before products are place on market or introduce in service.

(10) Safety requirements of modified parts were fulfilled by satisfying the following standards:

**EN 60079-0:2009, EN 60079-1:2007, EN 60079-11:2007,
EN 60079-18:2009, EN 60079-26:2007, EN 50303:2000,
EN 60079-29-1:2007, EN 50104:2010, EN 50270:2006, EN 50271:2001**

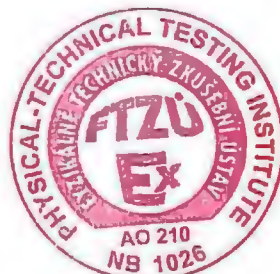
(11) Marking of equipment shall contain symbols:

**I M1 Ex ia I Ma
II 1G Ex ia IIC T3,T4 Ga
II 2G Ex d ia mb IIC T3,T4 Gb**

(12) This type examination certificate is valid till: **12.05.2014**

Responsible person:


Dipl. Ing. Lukáš Martinák
Head of Certification Body



Date of issue: **30.05.2013**

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**Physical Technical Testing Institute
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**Supplement No. 13 to
EC-Type Examination Certificate N° FTZÚ 08 ATEX 0340X**

(15) Description of Equipment or Protective System:

Variation thirteen, to permit:

- a) The model ALTAIR 5X can be alternatively supplied by one (1) encapsulated rechargeable 3.6V lithium-ion battery type Panasonic/Sanyo UR18650A which may be charged from chargers made available by MSA for use with this instrument.

Intrinsically safe parameters have not been changed. Technical description has not been changed. This change doesn't have influence on the safety and the detection performance of the apparatus.

Parameters: recapitulation

Charging contacts entity parameters

(for rechargeable battery):

Ambient temperature range:

Temperature class:

$U_m \leq 6.7 \text{ V}$

$-40^\circ\text{C} \leq T_a \leq +50^\circ\text{C}$

T3 with Varta High Energy 4906, LR6, MN1500

T3 with Energizer HP7 Stilo, E91, LR6, MN1500

T4 with Panasonic CGR18650DA

T4 with Panasonic/Sanyo UR18650A

T4 with Duracell LR6, MN1500

(16) Report No.: 08/0340/13

(17) Special conditions for safe use:

Remain unchanged.

(18) Essential Health and Safety Requirements:

Essential health and safety requirement of Directive 94/9/EC are covered by the standards mentioned in clause (10) of this supplement according which the new model was verified and in the manufacturer's Instruction for Use – document No 10116951.

(19) List of Documentation:

Document No.:	Revision:	Date:	Pages:	Title:
10116951	2	12.2012	95	Operating Manual
SK3098-1184	5	19.04.2013	75	FTZU approvals, ALTAIR5X / ALTAIR5XIR

Responsible person:

Dipl. Ing. Lukáš Martinák
Head of Certification Body



Date of issue: 30.05.2012

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(1) **Supplement No. 14 to
EC-Type Examination Certificate**

(2) **Equipment or Protective Systems Intended for Use
in Potentially Explosive Atmospheres
(Directive 94/9/EC)**

(3) EC-Type Examination Certificate Number:

FTZÚ 08 ATEX 0340X

(4) Equipment: **ALTAIR 5**

(5) Manufacturer: **Mine Safety Appliances Company**

(6) Address: **1000 Cranberry Woods Drive, Cranberry Twp, PA 16066, U.S.A.**

(7) This supplement of certificate is valid for: - modification of model ALTAIR 5X

(8) Modification of certified apparatus (protective system) and any of its approved variants are specified in documentation, list of which is mentioned in schedule of this certificate.

(9) This supplement to EC-Type Examination Certificate is valid only for type examination of design and construction of product sample in accordance with Annex 3 (Paragraph 6) of Directive No. 94/9/EC. The Directive contains other requirements, which manufacturer shall fulfill before products are placed on market or introduced in service.

(10) Safety requirements of modified parts were fulfilled by satisfying the following standards:

**EN 60079-0:2009, EN 60079-1:2007, EN 60079-11:2007,
EN 60079-18:2009, EN 60079-26:2007, EN 50303:2000,
EN 60079-29-1:2007, EN 50104:2010, EN 50270:2006, EN 50271:2010**

(11) Marking of equipment shall contain symbols:

 **I M1 Ex ia I Ma**
II 1G Ex ia IIC T3, T4 Ga - when combustible XCell Ex sensor is not installed
II 2G Ex d ia mb IIC T3, T4 Gb

(12) This type examination certificate is valid till: **04.04.2019**

Responsible person:

Dipl. Ing. Lukáš Martinák
Head of Certification Body



Date of issue: **04.04.2014**

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Physical Technical Testing Institute
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(14)

Supplement No. 14 to
EC-Type Examination Certificate N° FTZÚ 08 ATEX 0340X

(15) Description of Equipment:

Variation fourteen, to permit for model Altair 5X:

- a) Prolongation of validity of the certificate till 04.04.2019.
- b) Evaluation acc to standard EN 50271:2010.
- c) Oxygen inertization performance tests have been added.
- d) Change of the color display module, PCB and schematic.
- e) Firmware has been updated to version v1.27.06.

These changes don't have influence on the safety and the detection performance of the apparatus.

Parameters: only for model Altair5X

Performance approvals for temperature range -20 to +50°C

Gases CH₄, C₃H₈, H₂, C₄H₁₀, C₅H₁₂ in range 0-100% LEL for Group II by catalytic sensor.

Gas CH₄ in range 0-100% LEL for Group I by catalytic sensor.

Gas O₂ in range 0-25% (v/v) for inertization purposes only for Group I and II by electrochemical sensor.

Firmware version: v1.27.06

Charging contacts entity parameters: Um ≤ 6.7 V (for rechargeable battery)

Ambient temperature range: -40°C ≤ Ta ≤ +50°C for explosion safety

Temperature class:	T3	with Varta High Energy 4906, LR6, MN1500
	T3	with Energizer HP7 Stilo, E91, LR6, MN1500
	T4	with Panasonic CGR18650DA
	T4	with Panasonic/Sanyo UR18650A
	T4	with Duracell LR6, MN1500

(16) Report No.: 08/0340/14

(17) Special conditions for safe use: revised and added for model Altair 5X

- 17.1 The model ALTAIR 5X shall only be charged and opened in a non-hazardous area.
- 17.2 The warm-up time for oxygen is up to 180 seconds.
- 17.3 In event of combustible sensor over range the apparatus shall be exposed to fresh air for 20 minutes minimum and then the fresh air setup procedure shall be done.
- 17.4 The alarm set points are not applied for measuring oxygen inertization and it shall be taken into account.

Responsible person:

Dipl. Ing. Lukáš Martinák
Head of Certification Body



Date of issue: 04.04.2014

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Physical Technical Testing Institute
Ostrava – Radvanice

(13)

Schedule

(14)

Supplement No. 14 to
EC-Type Examination Certificate N° FTZÚ 08 ATEX 0340X

(18) Essential Health and Safety Requirements:

Essential health and safety requirement of Directive 94/9/EC are covered by the standards mentioned in clause (10) of this supplement according which the new model was verified and in the manufacturer's Instruction for Use – document No 10116951.

(19) List of Documentation:

Document No.:	Revision:	Date:	Pages:	Title:
10116951	3	03.2014	98	Operating Manual
SK3098-1184	6	21.10.2013	86	FTZU approvals, ALTAIR5X / ALTAIR5XIR
SK3098-1307	01	27.03.2014	22	Safety Discussion

Responsible person:

Dipl. Ing. Lukáš Martinák
Head of Certification Body



Date of issue: 04.04.2014

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(1) **Supplement No. 15 to
EC-Type Examination Certificate**

(2) **Equipment or Protective Systems Intended for Use
in Potentially Explosive Atmospheres
(Directive 94/9/EC)**

(3) EC-Type Examination Certificate Number:

FTZÚ 08 ATEX 0340X

(4) Equipment or protective system: **ALTAIR 5**

(5) Manufacturer: **Mine Safety Appliances Company**

(6) Address: **1000 Cranberry Woods Drive, Cranberry Twp, PA 16066, U.S.A.**

(7) This supplement of certificate is valid for: - modification of model ALTAIR 5X


(8) Modification of certified apparatus (protective system) and any of its approved variants are specified in documentation, list of which is mentioned in schedule of this certificate.

(9) This supplement to EC-Type Examination Certificate is valid only for type examination of design and construction of product sample in accordance with Annex 3 (Paragraph 6) of Directive No. 94/9/EC. The Directive contains other requirements, which manufacturer shall fulfill before products are placed on market or introduced into service.

(10) Safety requirements of modified parts were fulfilled by satisfying the following standards:

**EN 60079-0:2009, EN 60079-1:2007, EN 60079-11:2012,
EN 60079-18:2009, EN 60079-26:2007, EN 50303:2000,
EN 60079-29-1:2007, EN 50104:2010, EN 50270:2006, EN 50271:2010**

(11) Marking of equipment shall contain symbols:

 **I M1 Ex ia I Ma
II 1G Ex ia IIC T3,T4 Ga - when combustible XCell Ex sensor is not installed
II 2G Ex d ia mb IIC T3,T4 Gb**

(12) This type examination certificate is valid till: **05.12.2019**

Responsible person:

Dipl. Ing. Lukáš Martinák
Head of Certification Body



Date of issue: **05.12.2014**

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Physical Technical Testing Institute
Ostrava – Radvanice

(13)

Schedule

(14)

Supplement No. 15 to
EC-Type Examination Certificate N° FTZÚ 08 ATEX 0340X

(15) Description of Equipment:

Variation fifteen, to permit for model Altair 5X:

- Prolongation of validity of the certificate till 05.12.2019.
- Evaluation according to the new standard EN 60079-11:2012.
- Firmware has been updated to version v1.30.12.

The changes don't have influence on the safety and the detection performance of the apparatus.

(16) Report No.: 08/0340/15

(17) Special conditions for safe use: remain unchanged

(18) Essential Health and Safety Requirements:

Essential health and safety requirement of Directive 94/9/EC are covered by the standards mentioned in clause (10) of this supplement according which the model ALTAIR 5X was verified and in the manufacturer's document No 10116951.

(19) List of Documentation:

Document No.:	Revision:	Date:	Pages:	Title:
10116951	3	03.2014	98	Operating Manual
SK3098-1184	7	18.11.2014	86	FTZU approvals, ALTAIR5X / ALTAIR5XIR
SK3098-1307	02	10.10.2014	22	Safety Discussion

Responsible person:

Dipl. Ing. Lukáš Martinák
Head of Certification Body



Date of issue: 05.12.2014

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(1) **Supplement No. 16 to
EC-Type Examination Certificate**

(2) **Equipment or Protective Systems Intended for Use
in Potentially Explosive Atmospheres
(Directive 94/9/EC)**

(3) EC-Type Examination Certificate Number:

FTZÚ 08 ATEX 0340X

(4) Equipment or protective system: **ALTAIR 5**

(5) Manufacturer: **Mine Safety Appliances Company**

(6) Address: **1000 Cranberry Woods Drive, Cranberry Twp, PA 16066, U.S.A.**

(7) This supplement of certificate is valid for: - modification of model ALTAIR 5X

(8) Modification of certified apparatus (protective system) and any of its approved variants are specified in documentation, list of which is mentioned in schedule of this certificate.

(9) This supplement to EC-Type Examination Certificate is valid only for type examination of design and construction of product sample in accordance with Annex 3 (Paragraph 6) of Directive No. 94/9/EC. The Directive contains other requirements, which manufacturer shall fulfill before products are placed on market or introduced in service.

(10) Safety requirements of modified parts were fulfilled by satisfying the following standards:

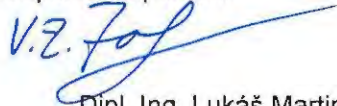
**EN 60079-0:2012, EN 60079-1:2014, EN 60079-11:2012,
EN 60079-18:2009, EN 50303:2000, EN 60079-29-1:2007,
EN 50104:2010, EN 50270:2006, EN 50271:2010**

(11) Marking of equipment shall contain symbols:

 **I M1 Ex ia I Ma**
II 1G Ex ia IIC T3,T4 Ga - when combustible XCell Ex sensor is not installed
II 2G Ex db ia mb IIC T3,T4 Gb

(12) This type examination certificate is valid till: **05.12.2019**

Responsible person:



Dipl. Ing. Lukáš Martinák
Head of Certification Body



Date of issue: 28.08.2015

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Physical Technical Testing Institute
Ostrava – Radvanice

(13)

Schedule

(14)

Supplement No. 16 to
EC-Type Examination Certificate N° FTZÚ 08 ATEX 0340X

(15) Description of Equipment:

Variation sixteen, to permit for model Altair 5X:

- a) Evaluation according to the new standard EN 60079-0:2012.
- b) Firmware has been updated to version v2.17.
- c) The Bluetooth module and passive RFID Tag have been added to electronic circuits.

The changes don't have influence on the safety and the detection performance of the apparatus.

(16) Report No.: 08/0340/16

(17) Special conditions for safe use: updated for model Altair 5X only:

- 17.1 The equipment shall only be charged by manufacturer's chargers in an ambient temperature from 0°C to +45°C and opened in a non-hazardous area.
- 17.2 The warm-up time for oxygen is up to 180 seconds.
- 17.3 In event of combustible sensor overrange the apparatus shall be exposed to fresh air for 20 minutes minimum and then the fresh air setup procedure shall be done.
- 17.4 The alarm set points are not applied for measuring oxygen inertization and it shall be taken into account.
- 17.5 The equipment enclosure includes accessible metal parts. The end user shall determine suitability in the specific application. The measured capacitance of the equipment with AA cells on the item: Battery fastening screw is 6pF. The measured capacitance of the equipment with Lilon cell on the item: D-ring is 26pF and on the item: Pin for charging is 16pF.
- 17.6 The antenna used for activation of the internal RFID tag with the RF radiation power shall not exceed 6W for Group I and 2W for Group IIC.

(18) Essential Health and Safety Requirements:

Essential health and safety requirement of Directive 94/9/EC are covered by the standards mentioned in clause (10) of this supplement according which the model ALTAIR 5X was verified and in the manufacturer's document No 10116951.

(19) List of Documentation:

Document No.:	Revision:	Date:	Pages:	Title:
10116951	4	2015	80	Operating Manual
SK3098-1184	8	16.07.2015	97	FTZU approvals, ALTAIR5X / ALTAIR5XIR
SK3098-1307	03	10.07.2015	17	Safety Discussion

Responsible person:

Dipl. Ing. Lukáš Martinák
Head of Certification Body



Date of issue: 28.08.2015

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(1) **Supplementary EU - Type Examination Certificate No.17**

(2) **Equipment or Protective Systems Intended for Use
in Potentially Explosive Atmospheres
(Directive 2014/34/EU)**

(3) EU - Type Examination Certificate number:

FTZÚ 08 ATEX 0340X

(4) Product: **ALTAIR 5X Multigas Detector**

(5) Manufacturer: **MSA – The Safety Company**

(6) Address: **1000 Cranberry Woods Drive, Cranberry Twp, PA 16066, USA**

(7) This supplementary certificate extends EC - Type Examination Certificate No. FTZÚ 08 ATEX 0340X to apply to products designed and constructed in accordance with the specification set out in the Schedule of the said certificate but having any variations specified in the Schedule attached to this certificate and the documents therein referred to.

(8) The Physical-Technical Testing Institute, Notified Body number 1026, in accordance with Articles 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26.02.2014, certifies that this product, as modified by this supplementary certificate, has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres given in Annex II to the Directive.

(9) In accordance with Article 41 of Directive 2014/34/EU, EC-Type Examination Certificates referring to 94/9/EC that were in existence prior to the date of application of 2014/34/EU (20.04.2016) may be referenced as if they were issued in accordance with Directive 2014/34/EU. Supplementary Certificates to such EC-Type Examination Certificates, and new issues of such certificates, may continue to bear the original certificate number issued prior to 20.04.2016.

(10) Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN 60079-0:2012+A11:2013	EN 60079-18:2009	EN 50270:2006
EN 60079-1:2014	EN 50303:2000	EN 50271:2010
EN 60079-11:2012	EN 60079-29-1:2007	EN 50104:2010

(11) The marking of the product shall include the following:

 **I M1 Ex ia I Ma**
II 1G Ex ia IIC T3,T4 Ga - when combustible XCell Ex sensor is not installed
II 2G Ex db ia mb IIC T3,T4 Gb

(12) The certificate is valid till: **05.12.2019**

Responsible person:

Dipl. Ing. Lukáš Martinák
Head of Certification Body



Date of issue: 10.03.2017

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Physical-Technical Testing Institute
Ostrava - Radvanice

(13)

Schedule

(14) **Supplementary EU - Type Examination Certificate No. 17
to FTZÚ 08 ATEX 0340X**

(15) Description of the variation to the Product:

The subject of this supplementary certificate is:

- evaluation according to the new standard,
- minor constructional change,
- change of name of manufacturer.

The product has been evaluated according to the standard EN 60079-0:2012+A11:2013. A minor alternative construction change has been done in the display assembly. The manufacturer's name has been changed from Mine Safety Appliances Company to MSA – The Safety Company.

(16) Report Number.: 08/0340/17

(17) Specific Conditions of Use:

remain unchanged

(18) Essential Health and Safety Requirements:

Compliance with the Essential Health and Safety Requirements is covered by standards mentioned in clause (10) of this supplementary certificate.

(19) Drawings and Documents:

Number:	Rev.	Title:
SK3098-1393	0	Att dwg

Responsible person:

Dipl. Ing. Lukáš Martinák
Head of Certification Body



Date of issue: 10.03.2017

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(1) **Supplementary EU - Type Examination Certificate No.18**

(2) **Equipment or Protective Systems Intended for Use
in Potentially Explosive Atmospheres
(Directive 2014/34/EU)**

(3) EU - Type Examination Certificate number:

FTZÚ 08 ATEX 0340X

(4) Product: **ALTAIR 5X Multigas Detector**

(5) Manufacturer: **MSA – The Safety Company**

(6) Address: **1000 Cranberry Woods Drive, Cranberry Twp, PA 16066, USA**

(7) This supplementary certificate extends EC - Type Examination Certificate No. FTZÚ 08 ATEX 0340X to apply to products designed and constructed in accordance with the specification set out in the Schedule of the said certificate but having any variations specified in the Schedule attached to this certificate and the documents therein referred to.

(8) The Physical-Technical Testing Institute, Notified Body number 1026, in accordance with Articles 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26.02.2014, certifies that this product, as modified by this supplementary certificate, has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres given in Annex II to the Directive.

(9) In accordance with Article 41 of Directive 2014/34/EU, EC-Type Examination Certificates referring to 94/9/EC that were in existence prior to the date of application of 2014/34/EU (20.04.2016) may be referenced as if they were issued in accordance with Directive 2014/34/EU. Supplementary Certificates to such EC-Type Examination Certificates, and new issues of such certificates, may continue to bear the original certificate number issued prior to 20.04.2016.

(10) Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN 60079-0:2012+A11:2013

EN 50303:2000

EN 50270:2006

EN 60079-1:2014

EN 60079-29-1:2007

EN 50271:2010

EN 60079-11:2012

EN 50104:2010

(11) The marking of the product shall include the following:



**I M1
II 1G**

**Ex ia I Ma
Ex da ia IIC T3,T4 Ga**

(12) The certificate is valid till:

05.12.2019

Responsible person:

Dipl. Ing. Lukáš Martinák
Head of Certification Body



Date of issue: 30.05.2017

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Physical-Technical Testing Institute
Ostrava - Radvanice

Schedule

(13)

(14) **Supplementary EU - Type Examination Certificate No.18
to FTZÚ 08 ATEX 0340X**

(15) Description of the variation to the Product:

The subject of this supplementary certificate is:

- update the list of standards
- change of the marking

The standard EN 60079-18 has been removed from the list of standards due to updated list of the used Ex components. The marking for the category 1G has been updated.

The updated list of Ex components:

- Catalytic sensor MSA XCell Ex, Ex da ia IIC Ga, Ex ia Ma, certified FTZÚ 09 ATEX 0123U
- El. chem. sensor MSA XCell eChem, Ex ia IIC Ga, Ex ia Ma, certified FTZÚ 09 ATEX 0223U

(16) Report Number.: 08/0340/18

(17) Specific Conditions of Use:

remain unchanged

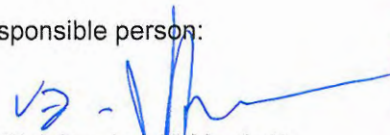
(18) Essential Health and Safety Requirements:

Compliance with the Essential Health and Safety Requirements is covered by standards mentioned in clause (10) of this supplementary certificate.

(19) Drawings and Documents:

Number:	Rev.	Date:	Title:
10116951	5	2017	Operating manual
SK3025-1075	2	2017	Label artwork

Responsible person:


Dipl. Ing. Lukáš Martinák
Head of Certification Body



Date of issue: 30.05.2017

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(1) **Supplementary EU - Type Examination Certificate No.19**

(2) **Equipment or Protective Systems Intended for Use
in Potentially Explosive Atmospheres
(Directive 2014/34/EU)**

(3) EU - Type Examination Certificate number:

FTZÚ 08 ATEX 0340X

(4) Product: **ALTAIR 5X Multigas Detector**

(5) Manufacturer: **MSA – The Safety Company**

(6) Address: **1000 Cranberry Woods Drive, Cranberry Twp, PA 16066, USA**

(7) This supplementary certificate extends EC - Type Examination Certificate No. FTZÚ 08 ATEX 0340X to apply to products designed and constructed in accordance with the specification set out in the Schedule of the said certificate but having any variations specified in the Schedule attached to this certificate and the documents therein referred to.

(8) The Physical-Technical Testing Institute, Notified Body number 1026, in accordance with Articles 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26.02.2014, certifies that this product, as modified by this supplementary certificate, has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres given in Annex II to the Directive.

(9) In accordance with Article 41 of Directive 2014/34/EU, EC-Type Examination Certificates referring to 94/9/EC that were in existence prior to the date of application of 2014/34/EU (20.04.2016) may be referenced as if they were issued in accordance with Directive 2014/34/EU. Supplementary Certificates to such EC-Type Examination Certificates, and new issues of such certificates, may continue to bear the original certificate number issued prior to 20.04.2016.


(10) Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

**EN 60079-0:2012+A11:2013
EN 60079-1:2014
EN 60079-11:2012**

**EN 50303:2000
EN 60079-29-1:2016**

**EN 50104:2010
EN 50271:2010**

(11) The marking of the product shall include the following:

 **I M1** **Ex ia I Ma**
II 1G **Ex da ia IIC T3, T4 Ga**

(12) The certificate is valid till: **05.12.2019**

Responsible person:

Dipl. Ing. Lukáš Martinák
Head of Certification Body



Date of issue: 25.04.2018

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Physical-Technical Testing Institute
Ostrava - Radvanice

(13)

Schedule

(14) **Supplementary EU - Type Examination Certificate No.19
to FTZÚ 08 ATEX 0340X**

(15) Description of the variation to the Product:

The subject of this supplementary certificate is:

- Performance tests according to the newest standard EN 60079-29-1:2016 has been carried out on the product ALTAIR 5X.
- The EMC tests in scope of the newest standard EN 50270:2015 have not been required by manufacturer. This information has been put to the point 7 of the specific conditions of use.

The assessment according to other standards EN 50104:2010, EN 50271:2010, EN 50303:2000, EN 60079-0:2012+A11:2013, EN 60079-11:2012 and EN 60079-1:2014 have not been affected.

Recapitulation of parameters for model ALTAIR 5X:

Performance approvals for temperature range -20 to +50°C

Gases CH₄, C₃H₈, H₂, C₄H₁₀, C₅H₁₂ in range 0-100% LEL for Group II by catalytic sensor.

Gas CH₄ in range 0-100% LEL for Group I by catalytic sensor.

Gas O₂ in range 0-25% (v/v) for inertization purposes only for Group I and II by el.chemical sensor.

Firmware version: v2.17

Charging contacts entity parameters: Um ≤ 6.7 V (for rechargeable battery)

Ambient temperature range: -40°C ≤ Ta ≤ +50°C for explosion safety

Temperature class: T3 with Varta High Energy 4906, LR6, MN1500
T3 with Energizer HP7 Stilo, E91, LR6, MN1500
T4 with Panasonic CGR18650DA
T4 with Panasonic/Sanyo UR18650A
T4 with Duracell LR6, MN1500

(16) Report Number.: 08/0340/19

(17) Specific Conditions of Use: added point 7

1. The equipment shall only be charged by manufacturer's chargers in an ambient temperature from 0°C to +45°C and opened in a non-hazardous area.
2. The warm-up time for oxygen is up to 180 seconds.
3. In event of combustible sensor overrange the apparatus shall be exposed to fresh air for 20 minutes minimum and then the fresh air setup procedure shall be done.
4. The alarm set points are not applied for measuring oxygen inertization and it shall be taken into account.

Responsible person:

Dipl. Ing. Lukáš Martinák
Head of Certification Body



Date of issue: 25.04.2018

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Physical-Technical Testing Institute
Ostrava - Radvanice

Schedule

(13)

(14) **Supplementary EU - Type Examination Certificate No.19
to FTZÚ 08 ATEX 0340X**

(17) Specific Conditions of Use: continue

5. The equipment enclosure includes accessible metal parts. The end user shall determine suitability in the specific application. The measured capacitance of the equipment with AA cells on the item: Battery fastening screw is 6pF. The measured capacitance of the equipment with Lilon cell on the item: D-ring is 26pF and on the item: Pin for charging is 16pF.
6. The antenna used for activation of the internal RFID tag with the RF radiation power shall not exceed 6W for Group I and 2W for Group IIC.
7. The EMC evaluation according to standard EN 50270:2015 is on manufacturer's responsibility.

(18) Essential Health and Safety Requirements:

Compliance with the Essential Health and Safety Requirements is covered by standards mentioned in clause (10) of this supplementary certificate.

(19) Drawings and Documents:

Number:	Rev.	Date:	Title:
10116951	6	2018	Operating manual – updated pages 57 and 59

Responsible person:

Dipl. Ing. Lukáš Martinák
Head of Certification Body



Date of issue: 25.04.2018

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