



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 09 ATEX 0006X

- (4) Equipment or protective system: **ALTAIR 5iR**
(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°


09/0006 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 60079-7:2007 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 e IIC T4**

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

Responsible person:


Dipl. Ing. Šindler 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 09 ATEX 0006X**

(15) Description of Equipment or Protective System:

The ALTAIR 5iR is a portable, battery operated, hand-held device designed to monitor gases in ambient air and in the workplace via an internal sample draw pump. It is available with a maximum of five (5) sensors which can display readings for six (6) gases. The catalytic bead sensor has an explosion protection "flameproof enclosure" Ex d, certified by SIRA (SIRA 07ATEX1088X). The infrared sensor has an explosion protection "increased safety" Ex e, certified by DEKRA EXAM (BVS 03 ATEX E 270 X).

The ALTAIR 5iR provides audible, visual, and tactile alarms when predetermined levels of pertinent gas concentrations have been detected.

The ALTAIR 5iR comprises five (5) 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 5iR is supplied 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.

Parameters:

Charging contacts entity parameters:	$U_m \leq 6.7 \text{ V}$
Ambient temperature range:	$-20^\circ\text{C} \leq T_a \leq +50^\circ\text{C}$

(16) Report No. : 09/0006 dated 12.05.2009

(17) Special conditions for safe use:

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

(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.

Responsible person:

Dipl. Ing. Šindler Jaroslav

Head of certification body



Date of issue: 12.05.2009

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**Physical Technical Testing Institute
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(13)

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(14) EC-Type Examination Certificate N° FTZÚ 09 ATEX 0006X

(18) 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] Certificate BVS 03 ATEX E 270 X (2 pages) with all supplements, Date: 20.08.2003
- [4] Test and Assessment Report BVS PP 03.2192EG (31 pages) with all supplements and revisions, Date: 20.08.2003
- [5] Drawing No.: SK3098-1128, Rev 0 (3 pages), Date: 21.04.2009
- [6] Drawing No.: 10095899, Rev 0 (3 pages), Date: 07.07.2008
- [7] Drawing No.: 10085785, Rev 1 (1 page), Date: 12.06.2008
- [8] Drawing No.: SK3098-1125, Rev 0 (38 pages), Date: 01.04.2009
- [9] Drawing No.: 7-7098-1, Rev 4 (1 page), Date: 13.08.2008
- [10] Drawing No.: 10088614, Rev 2 (1 page), Date: 12.03.2009
- [11] Drawing No.: 10088613, Rev 1 (1 page), Date: 24.03.2008
- [12] Drawing No.: 10088611, Rev 2 (1 page), Date: 12.03.2009
- [13] Drawing No.: 10083580, Rev 2 (1 page), Date: 25.04.2008
- [14] Schematic No.: SK3073-1048, Rev 4 (4 pages), Date: 11.02.2009
- [15] Bill of Materials No.: 10078704, Rev 9 (2 pages), Date: 06.04.2009
- [16] Schematic No.: DG6214500, Rev 0 (2 pages), Date: 30.10.2007
- [17] Bill of Materials No.: DG6214800, Rev 0 (2 pages), Date 03.08.2007
- [18] Drawing No.: DG6214000, Rev 0 (1 page), Date: 30.10.2007
- [19] Schematic No.: SK3014-1013, Rev 0 (1 page), Date: 06.11.2008
- [20] Drawing No.: 10099650, Rev 2 (4 pages), Date: 10.03.2009
- [21] Schematic No.: SK3014-1007, Rev 3 (1 page), Date: 03.09.2007
- [22] Bill of Materials No.: 10080501, Rev 6 (1 page), Date: 04.08.2008
- [23] Schematic No.: SK3073-1058, Rev 1 (1 page), Date: 14.10.2008
- [24] Bill of Materials No.: 10078701, Rev 1 (1 page), Date: 15.10.2008
- [25] Schematic No.: DG 6207 583, Rev 3 (3 pages), Date: 01.02.2006
- [26] Bill of Materials No.: DG 6207 483, Rev 3 (8 pages), Date: 01.02.2006
- [27] Drawing No.: DG 6207 983, Rev 3 (7 pages), Date: 01.02.2006

The documentation [1] to [27] was verified by FTZU dated 12.05.2009.

Responsible person:

Dipl. Ing. Šindler Jaroslav

Head of certification body



Date of issue: 12.05.2009

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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 09 ATEX 0006X

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

(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 60079-7:2007 EN 60079-11:2007

(11) Marking of equipment shall contain symbols:

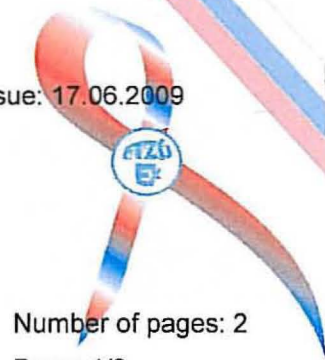
 **II 2G Ex ia d e IIC T4**

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

Responsible person:

Date of issue: 17.06.2009

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Head of certification body



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

(13) **Schedule**

(14) **Supplement No. 1 to
EC-Type Examination Certificate N° FTZÚ 09 ATEX 0006X**

(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. : 09/0006/1 (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:

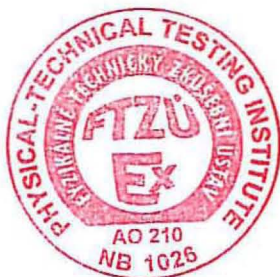
[1] Drawing No.: 10099650, Rev 3 (4 pages), Date: 01.06.2009

Date of verification of documentation by FTZÚ: 17.06.2009

Responsible person:

Date of issue: 17.06.2009

Dipl. Ing. Šindler Jaroslav
Head of certification body



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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 09 ATEX 0006X

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

(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 60079-7:2007 EN 60079-11:2007

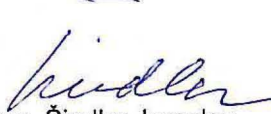
(11) Marking of equipment shall contain symbols:

 **II 2G Ex ia d e IIC T4**


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

Responsible person:

Date of issue: 05.10.2009


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Head of certification body




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(13)

Schedule

(14)

**Supplement No. 2 to
EC-Type Examination Certificate N° FTZÚ 09 ATEX 0006X**

(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. : 09/0006/2, date 05.10.2009 - 2 pages

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

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

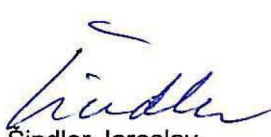
(19) List of documentation:

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

Date of verification of documentation by FTZÚ: 05.10.2009

Responsible person:

Date of issue: 05.10.2009


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Physical Technical Testing Institute
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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 09 ATEX 0006X

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

(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 e IIC 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
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(13)

Schedule

(14)

**Supplement No. 3 to
EC-Type Examination Certificate N° FTZÚ 09 ATEX 0006X**

(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, C₄H₁₀, C₅H₁₂ 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:

- [1] Operating manual, No.10094177, rev. 0 with manual addendum 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:

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Head of certification body



Date of issue: 31.08.2010

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Physical Technical Testing Institute
Ostrava-Radvanice



(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 09 ATEX 0006X

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

(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:

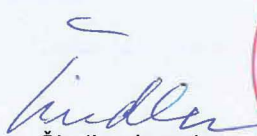
EN 60079-0:2006 EN 60079-11:2007

(11) Marking of equipment shall contain symbols:

 **II 2G Ex ia d e IIC 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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(13)

Schedule

(14)

**Supplement No. 4 to
EC-Type Examination Certificate N° FTZÚ 09 ATEX 0006X**

(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. : 09/0006/4, 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
[2] Drawing No.: DG6207483, Rev 04 (8 pages), Date: 18.06.2009

Date of verification of documentation by FTZÚ: 08.10.2010

Responsible person:


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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 09 ATEX 0006X

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

(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 5XiR

(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 60079-7:2007,
EN 60079-11:2007, EN 60079-18:2009**


(11) Marking of equipment shall contain symbols:



**I M2 Ex e ia I Mb
II 2G Ex d e ia mb IIC 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 09 ATEX 0006X**

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

Variation five, to permit:

1. The formation of the new model ALTAIR 5XiR which replaces the analogy, non-IR gas sensors used in the original ALTAIR 5iR and on-board sensor circuitry with MSA XCell™ series of sensors (FTZÚ 09ATEX0123U and FTZÚ 09ATEX0223U) each containing the associated analogy and digital circuitry and each now having a digital input and output.
2. The new model ALTAIR 5XiR was evaluated for Group I, category M2 certification.
3. Marking of the new model ALTAIR 5XiR was updated.

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

(16) Report No. : 09/0006/5, date 16.02.2011

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

17.1 The new model ALTAIR 5XiR 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.: SK3098-1196, Rev 0 (1 pages), Date: 05.01.2011

Date of verification of documentation by FTZÚ: 16.02.2011

Responsible person:


Dipl. Ing. Šindler Jaroslav

Head of certification body



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 09 ATEX 0006X

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

(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 M2 Ex e ia I Mb
II 2G Ex d e ia mb IIC T4 Gb**

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

Responsible person:


Dipl. Ing. Širidler 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 09 ATEX 0006X**

(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 5XiR.

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. : 09/0006/6, 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. Sindler 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 09 ATEX 0006X

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

(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 M2 Ex e ia I Mb
II 2G Ex d e ia mb IIC 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

Page: 1/2

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Physical Technical Testing Institute
Ostrava-Radvanice

(13)

Schedule

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**Supplement No. 7 to
EC-Type Examination Certificate N° FTZÚ 09 ATEX 0006X**

(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. : 09/0006/7, 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 5iR

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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Physical Technical Testing Institute
Ostrava-Radvanice



(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 09 ATEX 0006X

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

(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 e IIC 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
Page: 1/2

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Physical Technical Testing Institute
Ostrava-Radvanice

(13)

Schedule

(14)

**Supplement No. 8 to
EC-Type Examination Certificate N° FTZÚ 09 ATEX 0006X**

(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. : 09/0006/8, 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 10078704, rev10, date: 21.06.2011 - 2 pages

Date of verification of documentation by FTZÚ: 11.07.2011

Responsible person:

Dipl. Ing. Šindler Jaroslav
Head of certification body



Date of issue: 11.07.2011

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(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 09 ATEX 0006X

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

(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 ALTAIR5XiR

(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

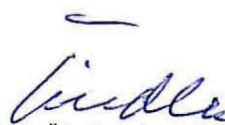
(11) Marking of equipment shall contain symbols:



**I M2 Ex e ia I Mb
II 2G Ex d e ia mb IIC 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

Page: 1/2

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**Physical Technical Testing Institute
Ostrava-Radvanice**

(13)

Schedule

(14)

**Supplement No. 9 to
EC-Type Examination Certificate N° FTZÚ 09 ATEX 0006X**

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

Variation nine, to permit:

- a) Minor changes of the equipment model ALTAIR 5XiR 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. : 09/0006/9, date 09.08.2011

(17) Special conditions for safe use: remain unchanged


(18) Essential Health and Safety Requirements: remain unchanged

(19) List of documentation:

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

Date of verification of documentation by FTZÚ: 09.08.2011

Responsible person:


Dipl. Ing. Šindler Jaroslav
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 09 ATEX 0006X

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

(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:


 **II 2G Ex ia d e IIC 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:  2011

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

(13) **Schedule**

(14) **Supplement No. 10 to
EC-Type Examination Certificate N° FTZÚ 09 ATEX 0006X**

(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. : 09/0006/10, date 14.11.2011

(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. 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:

Dipl. Ing. Šindler Jaroslav
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 09 ATEX 0006X

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

(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 ALTAIR5XIR


(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 M2 Ex e ia I Mb
II 2G Ex d e ia mb IIC 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 09 ATEX 0006X**

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

Variation eleven, to permit:

- a) The equipment model ALTAIR 5XiR 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. : 09/0006/11, 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] Addendum - Cross Reference Factors, No. 10120025, Rev.0, 1 sheet, Date: 29.11.2011
- [4] Source Code comparison ALTAIR 5X ver. 1.09.02, Rev.1.00.0184, 53 sheets, Date: 28.10.2011
- [5] Report on Impacts of SW Changes ALTAIR 5X ver. 1.09.02, Rev.1.00.0091, 5 sheets, Date: 07.11.2011
- [6] Firmware Flow Diagram, No. SK3098-1218, Rev.0, 12 sheets, Date: 07.10.2011
- [7] 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 09 ATEX 0006X

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

(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 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 50271:2001

(11) Marking of equipment shall contain symbols:

 **II 2G Ex ia d e IIC 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
Page: 1/2

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(14)

**Supplement No. 12 to
EC-Type Examination Certificate N° FTZÚ 09 ATEX 0006X**

(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. : 09/0006/12, dated 12.03.2012

(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. 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 09 ATEX 0006X

(4) Equipment or protective system: **Altair 5iR**

(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 ALTAIR5XiR


(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 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 60079-29-1:2007, EN 50270:2006

(11) Marking of equipment shall contain symbols:

 **I M2 Ex e ia I Mb
II 2G Ex d e ia mb IIC 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: 19.12.2012

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(13)

Schedule

(14)

Supplement No. 13 to
EC-Type Examination Certificate N° FTZÚ 09 ATEX 0006X

(15) Description of Equipment or Protective System:

Variation thirteen, to permit:

a) The equipment model ALTAIR 5XiR has been subjected to the performance tests prescribed in the standards listed in clause (10) for flammable gases for Group II for gas CH₄ in range 0-100% v/v and for gas C₄H₁₀ in range 0-25% v/v with IR sensor and complies with their requirements.

(16) Report No.: 09/0006/13, dated 19.12.2012

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

17.1 The pressure range 90kPa to 120kPa for gas CH₄ in range 0-100% v/v for IR sensor.

(18) Essential Health and Safety Requirements:

Covered by standards mentioned in (10) of this supplement.

(19) List of Documentation:

- [1] Operating manual, No.10116951, Rev.2, EN version, Date: 12.2012
- [2] Drawings No. SK3098-1184, Rev.4, Date: 07.12.2012

Responsible person:

Dipl. Ing. Lukáš Martinák
Head of Certification Body



Date of issue: 19.12.2012

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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 09 ATEX 0006X

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

(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 5XiR

(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 60079-7:2007,
EN 60079-11:2007, EN 60079-18:2009,
EN 60079-29-1:2007, EN 50104:2010, EN 50270:2006, EN 50271:2001**

(11) Marking of equipment shall contain symbols:



**I M2 Ex e ia I Mb
II 2G Ex d e ia mb IIC 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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(13)

Schedule

(14)

Supplement No. 14 to
EC-Type Examination Certificate N° FTZÚ 09 ATEX 0006X

(15) Description of Equipment or Protective System:

Variation fourteen, to permit:

- a) The model ALTAIR 5XiR 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):

$U_m \leq 6.7 \text{ V}$

Ambient temperature range:

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

Temperature class:

T4 with Panasonic CGR18650DA

T4 with Panasonic/Sanyo UR18650A

(16) Report No.: 09/0006/14

(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: 30.05.2013

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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 09 ATEX 0006X

(4) Equipment: **ALTAIR 5iR**

(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 5XiR


(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 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 60079-0:2009, EN 60079-1:2007, EN 60079-7:2007,
EN 60079-11:2007, 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 2G Ex d e ia mb IIC 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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(13)

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(14)

Supplement No. 15 to
EC-Type Examination Certificate N° FTZÚ 09 ATEX 0006X

(15) Description of Equipment or Protective System:

Variation fifteen, to permit for model Altair 5XiR:

- a) Prolongation of validity of the certificate till 04.04.2019.
- b) Change of marking – M1 category added. Additional tests have been carried out on IR sensor.
- c) Evaluation acc to standards EN 50271:2010 and EN 50303:2000.
- d) Oxygen inertization performance tests have been added.
- e) Change of the color display module, PCB and schematic.
- f) 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 Altair5XiR:

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.

Gases CH₄ in range 0-100% (v/v), C₄H₁₀ in range 0-25% (v/v) for Group II by IR sensor.

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

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

Firmware version: v1.27.06

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

Temperature class: T4 with Panasonic CGR18650DA or Panasonic/Sanyo UR18650A

Charging contacts entity parameters: Um ≤ 6.7 V

(16) Report No.: 09/0006/15

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

- 17.1 The model ALTAIR 5XiR 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 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 pressure range is 90kPa to 120kPa for gas CH₄ in range 0-100% (v/v) for IR sensor.
- 17.5 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. 15 to
EC-Type Examination Certificate N° FTZÚ 09 ATEX 0006X

(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. 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 09 ATEX 0006X

(4) Equipment: **ALTAIR 5iR**

(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 5XiR

(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 60079-7:2007,
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 2G Ex d e ia mb IIC 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

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(14)

Supplement No. 16 to
EC-Type Examination Certificate N° FTZÚ 09 ATEX 0006X

(15) Description of Equipment or Protective System:

Variation sixteen, to permit for model Altair 5XiR:

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

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

(16) Report No.: 09/0006/16

(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 5XiR 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. 17 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 09 ATEX 0006X

(4) Equipment: **ALTAIR 5iR**

(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 5XiR


(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 60079-7:2007,
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 2G Ex db e ia mb IIC T4 Gb**

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

Responsible person:

V.Z. Fojt

Dipl. Ing. Lukáš Martinák
Head of Certification Body



Date of issue: 28.08.2015

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Physical Technical Testing Institute
Ostrava – Radvanice

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Schedule

(14)

Supplement No. 17 to
EC-Type Examination Certificate N° FTZÚ 09 ATEX 0006X

(15) Description of Equipment or Protective System:

Variation seventeen, to permit for model Altair 5XiR:

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

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

(16) Report No.: 09/0006/17

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

- 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.
- The warm-up time for oxygen is up to 180 seconds.
- 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.
- The pressure range is 90kPa to 120kPa for gas CH₄ in range 0-100% (v/v) for IR sensor.
- The alarm set points are not applied for measuring oxygen inertization and it shall be taken into account.
- The equipment enclosure includes accessible metal parts. The end user shall determine suitability in the specific application. The measured capacitance of the equipment on the item: D-ring is 33pF and on the item: Pin for charging is 24pF.
- 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 5XiR 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:

V. Z. Fojt

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.18**

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

(3) EU - Type Examination Certificate number:

FTZÚ 09 ATEX 0006X

(4) Product: **ALTAIR 5XiR 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 09 ATEX 0006X 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 60079-7:2007

EN 60079-29-1:2007

EN 60079-11:2012

EN 50104:2010

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

 **I M1 Ex ia I Ma**
II 2G Ex db e ia mb IIC T4 Gb

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

Responsible person:

V. Zof

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. 18
to FTZÚ 09 ATEX 0006X**

(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.: 09/0006/18

(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.	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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Physical-Technical Testing Institute
Ostrava - Radvanice



(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 09 ATEX 0006X

(4) Product: **ALTAIR 5XiR 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 09 ATEX 0006X 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 60079-29-1:2007
EN 50104:2010

EN 50270:2006
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 Ga**

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

Responsible person:

V. Z. Jof

Dipl. Ing. Lukáš Martinák
Head of Certification Body



Date of issue: 25.08.2017

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Physical-Technical Testing Institute
Ostrava - Radvanice

Schedule

(13)

(14) **Supplementary EU - Type Examination Certificate No. 19
to FTZÚ 09 ATEX 0006X**

(15) Description of the variation to the Product:

The subject of this supplementary certificate is:

- evaluation according to the new list of standards,
- change of the marking.

The product has been evaluated according to the list of standards mentioned in clause (10). The product has been evaluated newly for Zone 0 with temperature class T3. The construction of the product and their parameters have not been changed.

(16) Report Number.: 09/0006/19

(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:
10116951	5	Operating manual
SK3025-1079	2	Artwork- labels

Responsible person:

Dipl. Ing. Lukáš Martinák
Head of Certification Body



Date of issue: 25.08.2017

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