

EC - TYPE EXAMINATION CERTIFICATE

Equipment or Protective System Intended for use in Potentially Explosive Atmospheres Directive 94/9/EC

- 3 EC - Type Examination Certificate Number: **Baseefa04ATEX0383 – Issue 14**
- 4 Equipment or Protective System: **Gasman Flammable Gas Detector**
- 5 Manufacturer: **Crowcon Detection Instruments Ltd**
- 6 Address: **Abingdon, Oxfordshire, OX14 4SD**
- 7 This equipment or protective system and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.
- 8 Baseefa, Notified Body number 1180, 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 Reports listed in Section 20.
- 9 Compliance with the Essential Health and Safety Requirements has been assured by compliance with:
EN 60079-0: 2012 EN 60079-1: 2007 EN 60079-11: 2012
except in respect of those requirements listed at item 18 of the Schedule.
- 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 and construction of the specified equipment or protective system. 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 the following :
- Ex II 2 G Ex ia d IIC T4 Gb (-20°C ≤T_a ≤+65°C)**

Baseefa Customer Reference No. 0249

Project File No. 14/0615

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SGS Baseefa Limited

Rockhead Business Park, Staden Lane,
Buxton, Derbyshire SK17 9RZ

Telephone +44 (0) 1298 766600 Fax +44 (0) 1298 766601

e-mail info@baseefa.com web site www.baseefa.com

Registered in England No. 4305578.

Registered address: Rossmore Business Park, Ellesmere Port, Cheshire, CH65 3EN

R S SINCLAIR

GENERAL MANAGER

On behalf of SGS Baseefa Limited

13

Schedule

14

Certificate Number Baseefa04ATEX0383 – Issue 14

15 Description of Equipment or Protective System

The Gasman Flammable Gas Detector is designed to detect the presence of flammable gas, give a visual indication of the concentration, and give audible and visual alarms if a preset level is exceeded. It comprises a rechargeable battery, a flammable gas sensor head, electronic circuits on printed circuit boards, a liquid crystal display, LED's and a piezo sounder, all contained in a plastic enclosure providing a degree of protection of at least IP20. External contacts are provided for recharging, and for serial data communications.

The flammable gas sensor module fitted is known as a flammable i-module. The flammable i-module can be replaced in the apparatus with an oxygen i-module (for oxygen deficiency detection), or a toxic i-module. The permitted i-modules are listed in the User Manual provided by the manufacturer.

The flammable sensor used is either type VQ500 series by E2V Technologies, to Certificate SIRA01ATEX1073U, or 4P series by City Technology to Certificate SIRA01ATEX1205U, with a Code of Ex d IIC Gb and a maximum permitted ambient temperature of +55°C. These sensors are certified to EN60079-0:2009 and EN60079-1:2007.

The apparatus is not designed for use in oxygen enriched atmospheres.

Charging conditions:

The apparatus must only be recharged or connected to serial communications when in a non-hazardous area, using the following chargers: -

Crowcon desktop charger / interface part number C01940

Crowcon desktop charger part number C01941

Alternatively, any Crowcon charger with an output (U_m) of 9V may be used to charge the apparatus, although when both charging and data communications are required, only charger / interface part number C01940 must be used.

16 Report Number

GB/BAS/ExTR14.0324/00

17 Specific Conditions of Use

None.

18 Essential Health and Safety Requirements

All relevant Essential Health and Safety Requirements are covered by the standards listed at item 9.

19 Drawings and Documents

The following drawings are associated and held with IECEx Certificate No. IECEx BAS 05.0038:

New drawings submitted for this issue of certificate:

| Number | Sheet | Issue | Date | Description |
|---------------|--------|-------|-----------|--|
| P-5460-A2 | 1 of 2 | 3 | 04/05 | Gasman Charger/Interface Assembly + Concession No. 14-019 dated 12/9/14. |
| 5492-PL-CERT* | 1 of 1 | 10 | Sept 2014 | Flammable i-Module Certification Parts List |

Current drawings also associated with this certificate.

| Number | Sheet | Issue | Date | Description |
|-------------------------|--------|-------|------------|---|
| 5490-CD-CERT | 1 of 1 | 4 | 16-11-2012 | i-module oxygen |
| P5475 Issue 3 | 1 to 7 | 3 | 14/9/06 | Flammable i-module board |
| P5493-PL-CER | 1 & 2 | 8 | 16/11/12 | Toxic i-Module Certification parts List |
| P5494-PL-CER | 1 | 6 | 11/12/13 | Oxygen i-Module Certification parts List |
| MCAD-000344 | 1 of 1 | 03 | 16/11/2011 | Gasman Battery |
| P-5424-A2 | 1 of 1 | 2 | 08/05 | Main Board Rechargeable PCB & Track Details |
| P-5517 issue 3 | 1 of 1 | 3 | 01/06 | Hybrid 1A (Circuit Diagram) |
| 5407-CERT | 1 of 1 | 7 | 10/07 | Crowcon Type 1A ("Rechargeable") Hybrid Certification Parts List |
| P-5406-A3 | 1 of 1 | 4 | 07/06 | Gasman Type 1A Hybrid Mech and Tracking Details |
| 5411-CERT | 1 of 1 | 6 | 10/07 | Crowcon Type 1B ("Encapsulated Fuse") Hybrid Certification Parts List |
| P-5410-A3 | 1 of 1 | 3 | 07/06 | Gasman Type 1B Hybrid Mech and Tracking Details |
| P-5486 issue 4 | 1 of 1 | 4 | 22-9-06 | Flammable i-Module Tetra, Tetra 3, Gasman |
| P-5476-A3 | 1 of 1 | 2 | 06/05 | Oxygen i-Module PCB & Track Details (used only for general physical size of module) |
| P-5488 issue 3 | 1 of 1 | 3 | 13/9/06 | Toxic iModule (Circuit Diagram) |
| P-5477-A3 | 1 of 1 | 2 | 06/05 | Toxic i-Module PCB & Track Details (used only for general physical size of module) |
| P-5518 issue 3 | 1 of 1 | 3 | 22/09/06 | Tetra/Gasman COSH iModule (Circuit Diagram) |
| P-5844-A4 | 1 & 2 | 2 | 22.9.2006 | Dual Toxic i-Module Certification Parts List |
| P-5526-A3 | 1 of 1 | 1 | 10/05 | COSH i-Module PCB & Track Details (used only for general physical size of module) |
| P-5520 Issue 1 | 1 of 1 | 1 | 6/9/05 | Alphasense COSH iModule Adapter |
| P-5527-A3 | 1 of 1 | 1 | 10/05 | Alphasense D2 COSH i-Module Adapter PCB & Track Details |
| 5553-CERT | 1 of 1 | 1 | 05/08 | Gasman Certification Instrument Names |
| P5427 issue 5 Charger | 1 of 1 | 5 | 12/3/07 | Gasman Charger (Circuit Diagram) |
| P-5428 | 1 to 6 | 4 | 11/1/07 | Gasman (Budgie) Charger PCB |
| P5437 issue 1 Interface | 1 of 2 | 1 | 20/12/04 | Gasman Interface PCB (Circuit Diagram) |
| P-5438-A3 | 1 of 1 | 1 | 02/05 | Gasman Interface PCB and Track Details |
| P-5429-A4 | 1 of 1 | 3,4,5 | 12.3.2007 | Gasman External Charger Certification Parts List |
| P-5439-A4 | 1 of 1 | 1 | 3.3.2005 | Gasman External Interface Certification Parts List |
| P-5495-A4 | 1 of 1 | 3 | 02/07 | Gasman Charger Label |

20 Certificate History

| Certificate No. | Date | Comments |
|-------------------|-------------|--|
| Baseefa04ATEX0383 | 10 May 2005 | The release of the prime certificate. The associated test and assessment against the requirements of EN 50014: 1997 + Amd. 1 & 2, EN 50018: 2000 + Amd. 1 & EN 50020: 2002 is documented in Test Report No. 04(C)0202. |

| Certificate No. | Date | Comments |
|----------------------|-------------------|---|
| Baseefa04ATEX0383/1 | 22 June 2005 | To permit the use of an alternative rechargeable battery, minor changes to the oxygen and toxic i-modules and other minor drawing changes not affecting the original assessment as documented in Test Report No. 05(C)0256. |
| Baseefa04ATEX0383/2 | 28 February 2006 | To permit the optional use of an alternative sensor module known as dual toxic and other minor drawing changes not affect the original assessment as documented in Test Report No. 05(C)0256/1. |
| Baseefa04ATEX0383/3 | 11 April 2006 | To permit a change of encapsulant in the hybrid circuits. |
| Baseefa04ATEX0383/4 | 12 July 2006 | To permit the use of alternative model names Gas-Mate, Oxy-Mate CR and Toxi-Mate CR and minor additions to the Oxygen and Toxic i-Module Certification Parts Lists. |
| Baseefa04ATEX0383/5 | 15 September 2006 | To permit minor drawing changes, the use of alternative sounders, and the use of alternative CO2 chemical i-module as documented in Test Report No. 06(C)0673. |
| Baseefa04ATEX0383/6 | 8 December 2006 | To permit minor changes to the desktop charger units with part number C01940 and C01941. Also to permit the replacement of desktop charger C01941 with any Crowcon charger with an output (U_m) of 9V. When both charging and data communication are required, only charger / interface part number C01940 must be used as documented in Test Report No. 06(C)1022. |
| Baseefa04ATEX0383/7 | 4 July 2007 | To permit minor changes to drawings and minor modification to circuits. |
| Baseefa04ATEX0383/8 | 4 April 2008 | To permit the use of an alternative cell type ICP653450U. When this cell is used, the marking becomes: Ex II 2G Ex ia d IIC 170°C (T3) (-20°C $\leq T_a \leq$ +65°C) Testing documented in Test Report No. 08(C)0211 |
| Baseefa04ATEX0383/9 | 12 June 2008 | To permit use of an alternative encapsulant in the hybrid circuits and to permit the introduction of a new drawing listing the possible model names. |
| Baseefa04ATEX0383/10 | 6 August 2008 | To permit the use of an alternative rechargeable cell Sanyo Type UF553450Z. When this cell is used the marking is: Ex II 2G Ex ia d IIC T4 (-20°C $\leq T_a \leq$ +65°C) Also to permit minor drawing changes not affect the original assessment. Testing documented in Test Report No. GB/BAS/ExTR08.0128/00 |

| Certificate No. | Date | Comments |
|--|-------------------|--|
| Baseefa04ATEX0383 Issue 11 | 16 December 2009 | <p>This issue of the certificate incorporates previously issued primary & supplementary certificates into one certificate and confirms the current design meets the requirements of EN 60079-0: 2006 & EN 60079-11: 2007 including the revision of the equipment marking in accordance with these standards.</p> <p>The certificate also permits: -</p> <ol style="list-style-type: none"> 1) The removal of the alternative rechargeable cell type ICP653450U and therefore the T3 variant of the equipment is now obsolete. 2) The alternative fitting of the Hybrid 3 sub-assembly in place of the Hybrid 1A sub-assembly not affecting the original assessment. <p>Certification Drawing No's 5392, P5423 issue 4, P-5425-A4, 5551-CERT, P-5867-CERT Issue 1 and P-5879-CERT Issue 1 were made obsolete.</p> |
| Baseefa04ATEX0383 Issue 12 | 2 December 2011 | <p>This issue of the certificate confirms the current design meets the requirements of EN 60079-0:2009 and adds an updated rechargeable battery drawing. The marking code remains unchanged.</p> |
| Baseefa04ATEX0383 Issue 13 | 01 September 2014 | <p>Confirms the current design meets the requirements of EN 60079-0:2012 and EN 60079-11:2012 and records minor changes to some drawings. The assessment is recorded in GB/BAS/ExTR14.0249/00.</p> |
| Baseefa04ATEX0383 Issue 14 | 04 November 2014 | <p>Records a minor change to the Gasman Charger / Interface terminal pins not affecting the original assessment and permits the addition of an alternative Gas Sensor SGX Sensortech (S.A.) Micro-Pellistor MP-7217, MP-7218 and VQ548MP, covered by certificate DEMKO 14 ATEX 1266U. Assessment documented in Test Report No. GB/BAS/ExTR14.0324/00.</p> |
| For drawings applicable to each issue, see original of that issue. | | |

EC - TYPE EXAMINATION CERTIFICATE

Equipment or Protective System Intended for use in Potentially Explosive Atmospheres Directive 94/9/EC

- 1
- 2
- 3 EC - Type Examination Certificate Number: **Baseefa04ATEX0383 – Issue 13**
- 4 Equipment or Protective System: **Gasman Flammable Gas Detector**
- 5 Manufacturer: **Crowcon Detection Instruments Ltd**
- 6 Address: **Abingdon, Oxfordshire, OX14 4SD**
- 7 This equipment or protective system and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.
- 8 Baseefa, Notified Body number 1180, 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 Reports listed in Section 20.
- 9 Compliance with the Essential Health and Safety Requirements has been assured by compliance with:
EN 60079-0: 2012 EN 60079-1: 2007 EN 60079-11: 2012
except in respect of those requirements listed at item 18 of the Schedule.
- 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 and construction of the specified equipment or protective system. 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 the following :
- ⊕ II 2 G Ex ia d IIC T4 Gb (-20°C ≤ T_a ≤ +65°C)**

Baseefa Customer Reference No. 0249

Project File No. 13/0719

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SGS Baseefa Limited

Rockhead Business Park, Staden Lane,
Buxton, Derbyshire SK17 9RZ

Telephone +44 (0) 1298 766600 Fax +44 (0) 1298 766601

e-mail info@baseefa.com web site www.baseefa.com

Registered in England No. 4305578.

Registered address: Rossmore Business Park, Ellesmere Port, Cheshire, CH65 3EN


R S SINCLAIR

GENERAL MANAGER

On behalf of SGS Baseefa Limited

13 **Schedule**

14 **Certificate Number Baseefa04ATEX0383 – Issue 13**

15 **Description of Equipment or Protective System**

The Gasman Flammable Gas Detector is designed to detect the presence of flammable gas, give a visual indication of the concentration, and give audible and visual alarms if a preset level is exceeded. It comprises a rechargeable battery, a flammable gas sensor head, electronic circuits on printed circuit boards, a liquid crystal display, LED's and a piezo sounder, all contained in a plastic enclosure providing a degree of protection of at least IP20. External contacts are provided for recharging, and for serial data communications.

The flammable gas sensor module fitted is known as a flammable i-module. The flammable i-module can be replaced in the apparatus with an oxygen i-module (for oxygen deficiency detection), or a toxic i-module. The permitted i-modules are listed in the User Manual provided by the manufacturer.

The flammable sensor used is either type VQ500 series by E2V Technologies, to Certificate SIRA01ATEX1073U, or 4P series by City Technology to Certificate SIRA01ATEX1205U, with a Code of Ex d IIC Gb and a maximum permitted ambient temperature of +55°C. These sensors are certified to EN60079-0:2009 and EN60079-1:2007.

The apparatus is not designed for use in oxygen enriched atmospheres.

Charging conditions:

The apparatus must only be recharged or connected to serial communications when in a non-hazardous area, using the following chargers: -

Crowcon desktop charger / interface part number C01940

Crowcon desktop charger part number C01941

Alternatively, any Crowcon charger with an output (U_m) of 9V may be used to charge the apparatus, although when both charging and data communications are required, only charger / interface part number C01940 must be used.

16 **Report Number**

GB/BAS/ExTR14.0249/00

17 **Specific Conditions of Use**

None.

18 **Essential Health and Safety Requirements**

All relevant Essential Health and Safety Requirements are covered by the standards listed at item 9.

19 **Drawings and Documents**

The following drawings are associated and held with IECEx Certificate No. IECEx BAS 05.0038:

New drawings submitted for this issue of certificate.

| Number | Sheet | Issue | Date | Description |
|---------------|--------|-------|------------|--|
| 5490-CD-CERT | 1 of 1 | 4 | 16-11-2012 | i-module oxygen |
| P5475 Issue 3 | 1 to 7 | 3 | 14/9/06 | Flammable i-module board |
| P5493-PL-CER | 1 & 2 | 8 | 16/11/12 | Toxic i-Module Certification parts List |
| P5494-PL-CER | 1 | 6 | 11/12/13 | Oxygen i-Module Certification parts List |

Current drawings also associated with this certificate.

| Number | Sheet | Issue | Date | Description |
|-------------------------|--------|-------|------------|---|
| MCAD-000344 | 1 of 1 | 03 | 16/11/2011 | Gasman Battery |
| P-5424-A2 | 1 of 1 | 2 | 08/05 | Main Board Rechargeable PCB & Track Details |
| P-5517 issue 3 | 1 of 1 | 3 | 01/06 | Hybrid 1A (Circuit Diagram) |
| 5407-CERT | 1 of 1 | 7 | 10/07 | Crowcon Type 1A ("Rechargeable") Hybrid Certification Parts List |
| P-5406-A3 | 1 of 1 | 4 | 07/06 | Gasman Type 1A Hybrid Mech and Tracking Details |
| 5411-CERT | 1 of 1 | 6 | 10/07 | Crowcon Type 1B ("Encapsulated Fuse") Hybrid Certification Parts List |
| P-5410-A3 | 1 of 1 | 3 | 07/06 | Gasman Type 1B Hybrid Mech and Tracking Details |
| P-5486 issue 4 | 1 of 1 | 4 | 22-9-06 | Flammable i-Module Tetra, Tetra 3, Gasman |
| P-5476-A3 | 1 of 1 | 2 | 06/05 | Oxygen i-Module PCB & Track Details (used only for general physical size of module) |
| P-5488 issue 3 | 1 of 1 | 3 | 13/9/06 | Toxic iModule (Circuit Diagram) |
| P-5477-A3 | 1 of 1 | 2 | 06/05 | Toxic i-Module PCB & Track Details (used only for general physical size of module) |
| P-5518 issue 3 | 1 of 1 | 3 | 22/09/06 | Tetra/Gasman COSH iModule (Circuit Diagram) |
| P-5844-A4 | 1 & 2 | 2 | 22.9.2006 | Dual Toxic i-Module Certification Parts List |
| P-5526-A3 | 1 of 1 | 1 | 10/05 | COSH i-Module PCB & Track Details (used only for general physical size of module) |
| P-5520 Issue 1 | 1 of 1 | 1 | 6/9/05 | Alphasense COSH iModule Adapter |
| P-5527-A3 | 1 of 1 | 1 | 10/05 | Alphasense D2 COSH i-Module Adapter PCB & Track Details |
| 5553-CERT | 1 of 1 | 1 | 05/08 | Gasman Certification Instrument Names |
| P5427 issue 5 Charger | 1 of 1 | 5 | 12/3/07 | Gasman Charger (Circuit Diagram) |
| P-5428 | 1 to 6 | 4 | 11/1/07 | Gasman (Budgie) Charger PCB |
| P5437 issue 1 Interface | 1 of 2 | 1 | 20/12/04 | Gasman Interface PCB (Circuit Diagram) |
| P-5438-A3 | 1 of 1 | 1 | 02/05 | Gasman Interface PCB and Track Details |
| P-5429-A4 | 1 of 1 | 3,4,5 | 12.3.2007 | Gasman External Charger Certification Parts List |
| P-5439-A4 | 1 of 1 | 1 | 3.3.2005 | Gasman External Interface Certification Parts List |
| P-5460-A2 | 1 of 2 | 3 | 04/05 | Gasman Charger / Interface Assembly |
| P-5495-A4 | 1 of 1 | 3 | 02/07 | Gasman Charger Label |

20 Certificate History

| Certificate No. | Date | Comments |
|---------------------|------------------|---|
| Baseefa04ATEX0383 | 10 May 2005 | The release of the prime certificate. The associated test and assessment against the requirements of EN 50014: 1997 + Amd. 1 & 2, EN 50018: 2000 + Amd. 1 & EN 50020: 2002 is documented in Test Report No. 04(C)0202. |
| Baseefa04ATEX0383/1 | 22 June 2005 | To permit the use of an alternative rechargeable battery, minor changes to the oxygen and toxic i-modules and other minor drawing changes not affecting the original assessment as documented in Test Report No. 05(C)0256. |
| Baseefa04ATEX0383/2 | 28 February 2006 | To permit the optional use of an alternative sensor module known as dual toxic and other minor drawing changes not affect the original assessment as documented in Test Report No. 05(C)0256/1. |

| Certificate No. | Date | Comments |
|-------------------------------|-------------------|--|
| Baseefa04ATEX0383/3 | 11 April 2006 | To permit a change of encapsulant in the hybrid circuits. |
| Baseefa04ATEX0383/4 | 12 July 2006 | To permit the use of alternative model names Gas-Mate, Oxy-Mate CR and Toxi-Mate CR and minor additions to the Oxygen and Toxic i-Module Certification Parts Lists. |
| Baseefa04ATEX0383/5 | 15 September 2006 | To permit minor drawing changes, the use of alternative sounders, and the use of alternative CO2 chemical i-module as documented in Test Report No. 06(C)0673. |
| Baseefa04ATEX0383/6 | 8 December 2006 | To permit minor changes to the desktop charger units with part number C01940 and C01941. Also to permit the replacement of desktop charger C01941 with any Crowcon charger with an output (U_m) of 9V. When both charging and data communication are required, only charger / interface part number C01940 must be used as documented in Test Report No. 06(C)1022. |
| Baseefa04ATEX0383/7 | 4 July 2007 | To permit minor changes to drawings and minor modification to circuits. |
| Baseefa04ATEX0383/8 | 4 April 2008 | To permit the use of an alternative cell type ICP653450U. When this cell is used, the marking becomes: Ex II 2G Ex ia d IIC 170°C (T3) (-20°C $\leq T_a \leq$ +65°C) Testing documented in Test Report No. 08(C)0211 |
| Baseefa04ATEX0383/9 | 12 June 2008 | To permit use of an alternative encapsulant in the hybrid circuits and to permit the introduction of a new drawing listing the possible model names. |
| Baseefa04ATEX0383/10 | 6 August 2008 | To permit the use of an alternative rechargeable cell Sanyo Type UF553450Z. When this cell is used the marking is: Ex II 2G Ex ia d IIC T4 (-20°C $\leq T_a \leq$ +65°C) Also to permit minor drawing changes not affect the original assessment. Testing documented in Test Report No. GB/BAS/ExTR08.0128/00 |
| Baseefa04ATEX0383 Issue 11 | 16 December 2009 | This issue of the certificate incorporates previously issued primary & supplementary certificates into one certificate and confirms the current design meets the requirements of EN 60079-0: 2006 & EN 60079-11: 2007 including the revision of the equipment marking in accordance with these standards. The certificate also permits: - 1) The removal of the alternative rechargeable cell type ICP653450U and therefore the T3 variant of the equipment is now obsolete. 2) The alternative fitting of the Hybrid 3 sub-assembly in place of the Hybrid 1A sub-assembly not affecting the original assessment. Certification Drawing No's 5392, P5423 issue 4, P-5425-A4, 5551-CERT, P-5867-CERT Issue 1 and P-5879-CERT Issue 1 were made obsolete. |
| Baseefa04ATEX0383 Issue 12 | 2 December 2011 | This issue of the certificate confirms the current design meets the requirements of EN 60079-0:2009 and adds an updated rechargeable battery drawing. The marking code remains unchanged. |

Certificate Number
Baseefa04ATEX0383
Issue 13

SGS



Issued 1 September 2014
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| Certificate No. | Date | Comments |
|--|-------------------|---|
| Baseefa04ATEX0383 Issue 13 | 01 September 2014 | Confirms the current design meets the requirements of EN 60079-0:2012 and EN 60079-11:2012 and records minor changes to some drawings. The assessment is recorded in GB/BAS/ExTR14.0249/00. |
| For drawings applicable to each issue, see original of that issue. | | |



EC - TYPE EXAMINATION CERTIFICATE

Equipment or Protective System Intended for use in Potentially Explosive Atmospheres Directive 94/9/EC

- 3 EC - Type Examination Certificate Number: **Baseefa04ATEX0383 – Issue 12**
- 4 Equipment or Protective System: **Gasman Flammable Gas Detector**
- 5 Manufacturer: **Crowcon Detection Instruments Ltd**
- 6 Address: **Abingdon, Oxfordshire, OX14 1DY**
- 7 This equipment or protective system and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.
- 8 Baseefa, Notified Body number 1180, 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.
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EN 60079-0: 2009 EN 60079-1: 2007 EN 60079-11: 2007
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Ex II 2 G Ex ia d IIC T4 Gb (-20°C ≤ T_a ≤ +65°C)

This certificate may only be reproduced in its entirety, without any change, schedule included.

Baseefa Customer Reference No. **0249**

Project File No. **11/0703**

This certificate is granted subject to the general terms and conditions of Baseefa. It does not necessarily indicate that the equipment may be used in particular industries or circumstances.

Baseefa

Rockhead Business Park, Sladen Lane,
Buxton, Derbyshire SK17 9RZ
Telephone +44 (0) 1298 766600 Fax +44 (0) 1298 766601
e-mail info@baseefa.com web site www.baseefa.com
Baseefa is a trading name of Baseefa Ltd
Registered in England No. 4305578. Registered address as above.

IP3ealey
PP DBREARLEY
R S SINCLAIR
DIRECTOR
On behalf of
Baseefa



Schedule

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Certificate Number Baseefa04ATEX0383 – Issue 12

15 Description of Equipment or Protective System

The Gasman Flammable Gas Detector is designed to detect the presence of flammable gas, give a visual indication of the concentration, and give audible and visual alarms if a preset level is exceeded. It comprises a rechargeable battery, a flammable gas sensor head, electronic circuits on printed circuit boards, a liquid crystal display, LED's and a piezo sounder, all contained in a plastic enclosure providing a degree of protection of at least IP20. External contacts are provided for recharging, and for serial data communications.

The flammable gas sensor module fitted is known as a flammable i-module. The flammable i-module can be replaced in the apparatus with an oxygen i-module (for oxygen deficiency detection), or a toxic i-module. The permitted i-modules are listed in the User Manual provided by the manufacturer.

The apparatus is not designed for use in oxygen enriched atmospheres.

Charging conditions:

The apparatus must only be recharged or connected to serial communications when in a non-hazardous area, using the following chargers: -

Crowcon desktop charger / interface part number C01940

Crowcon desktop charger part number C01941

Alternatively, any Crowcon charger with an output (U_m) of 9V may be used to charge the apparatus, although when both charging and data communications are required, only charger / interface part number C01940 must be used.

16 Report Number

GB/BAS/ExTR09.0166/00

17 Special Conditions for Safe Use

None.

18 Essential Health and Safety Requirements

All relevant Essential Health and Safety Requirements are covered by the standards listed at item 9.

19 Drawings and Documents

The following drawings are associated and held with IECEx Certificate No. IECEx BAS 05.0038:

New drawings submitted for this issue of certificate:

| Number | Sheet | Issue | Date | Description |
|-------------|--------|-------|------------|----------------|
| MCAD-000344 | 1 of 1 | 03 | 16/11/2011 | Gasman Battery |



Current drawings also associated with this certificate:

| Number | Sheet | Issue | Date | Description |
|-------------------------|--------|-------|-----------|---|
| P-5424-A2 | 1 of 1 | 2 | 08/05 | Main Board Rechargeable PCB & Track Details |
| P-5517 issue 3 | 1 of 1 | 3 | 01/06 | Hybrid 1A (Circuit Diagram) |
| 5407-CERT | 1 of 1 | 7 | 10/07 | Crowcon Type 1A ("Rechargeable") Hybrid Certification Parts List |
| P-5406-A3 | 1 of 1 | 4 | 07/06 | Gasman Type 1A Hybrid Mech and Tracking Details |
| 5411-CERT | 1 of 1 | 6 | 10/07 | Crowcon Type 1B ("Encapsulated Fuse") Hybrid Certification Parts List |
| P-5410-A3 | 1 of 1 | 3 | 07/06 | Gasman Type 1B Hybrid Mech and Tracking Details |
| P-5486 issue 4 | 1 of 1 | 4 | 22-9-06 | Flammable i-Module Tetra, Tetra 3, Gasman |
| P-5475-A3 | 1 to 7 | 3 | 14/9/06 | Flammable i-Module Board |
| P-5490 issue 3 | 1 of 1 | 3 | 13/9/06 | Tetra / Gasman Oxygen iModule (Circuit Diagram) |
| P-5494-A4 | 1 of 1 | 4 | Sept 2006 | Oxygen i-Module Certification Parts List |
| P-5476-A3 | 1 of 1 | 2 | 06/05 | Oxygen i-Module PCB & Track Details (used only for general physical size of module) |
| P-5488 issue 3 | 1 of 1 | 3 | 13/9/06 | Toxic iModule (Circuit Diagram) |
| P-5493-A4 | 1 & 2 | 7 | Jan 2007 | Toxic i-Module Certification Parts List |
| P-5477-A3 | 1 of 1 | 2 | 06/05 | Toxic i-Module PCB & Track Details (used only for general physical size of module) |
| P-5518 issue 3 | 1 of 1 | 3 | 22/09/06 | Tetra/Gasman COSH iModule (Circuit Diagram) |
| P-5844-A4 | 1 & 2 | 2 | 22.9.2006 | Dual Toxic i-Module Certification Parts List |
| P-5526-A3 | 1 of 1 | 1 | 10/05 | COSH i-Module PCB & Track Details (used only for general physical size of module) |
| P-5520 Issue 1 | 1 of 1 | 1 | 6/9/05 | Alphasense COSH iModule Adapter |
| P-5527-A3 | 1 of 1 | 1 | 10/05 | Alphasense D2 COSH i-Module Adapter PCB & Track Details |
| 5553-CERT | 1 of 1 | 1 | 05/08 | Gasman Certification Instrument Names |
| P5427 issue 5 Charger | 1 of 1 | 5 | 12/3/07 | Gasman Charger (Circuit Diagram) |
| P-5428 | 1 to 6 | 4 | 11/1/07 | Gasman (Budgie) Charger PCB |
| P5437 issue 1 Interface | 1 of 2 | 1 | 20/12/04 | Gasman Interface PCB (Circuit Diagram) |
| P-5438-A3 | 1 of 1 | 1 | 02/05 | Gasman Interface PCB and Track Details |
| P-5429-A4 | 1 of 1 | 3,4,5 | 12.3.2007 | Gasman External Charger Certification Parts List |
| P-5439-A4 | 1 of 1 | 1 | 3.3.2005 | Gasman External Interface Certification Parts List |
| P-5460-A2 | 1 of 2 | 3 | 04/05 | Gasman Charger / Interface Assembly |
| P-5495-A4 | 1 of 1 | 3 | 02/07 | Gasman Charger Label |



20 Certificate History

| Certificate No. | Date | Comments |
|----------------------|-------------------|---|
| Baseefa04ATEX0383 | 10 May 2005 | The release of the prime certificate. The associated test and assessment against the requirements of EN 50014: 1997 + Amd. 1 & 2, EN 50018: 2000 + Amd. 1 & EN 50020: 2002 is documented in Test Report No. 04(C)0202. |
| Baseefa04ATEX0383/1 | 22 June 2005 | To permit the use of an alternative rechargeable battery, minor changes to the oxygen and toxic i-modules and other minor drawing changes not affecting the original assessment as documented in Test Report No. 05(C)0256. |
| Baseefa04ATEX0383/2 | 28 February 2006 | To permit the optional use of an alternative sensor module known as dual toxic and other minor drawing changes not affect the original assessment as documented in Test Report No. 05(C)0256/1. |
| Baseefa04ATEX0383/3 | 11 April 2006 | To permit a change of encapsulant in the hybrid circuits. |
| Baseefa04ATEX0383/4 | 12 July 2006 | To permit the use of alternative model names Gas-Mate, Oxy-Mate CR and Toxi-Mate CR and minor additions to the Oxygen and Toxic i-Module Certification Parts Lists. |
| Baseefa04ATEX0383/5 | 15 September 2006 | To permit minor drawing changes, the use of alternative sounders, and the use of alternative CO2 chemical i-module as documented in Test Report No. 06(C)0673. |
| Baseefa04ATEX0383/6 | 8 December 2006 | To permit minor changes to the desktop charger units with part number C01940 and C01941. Also to permit the replacement of desktop charger C01941 with any Crowcon charger with an output (U_m) of 9V. When both charging and data communication are required, only charger / interface part number C01940 must be used as documented in Test Report No. 06(C)1022. |
| Baseefa04ATEX0383/7 | 4 July 2007 | To permit minor changes to drawings and minor modification to circuits. |
| Baseefa04ATEX0383/8 | 4 April 2008 | To permit the use of an alternative cell type ICP653450U. When this cell is used, the marking becomes: ⊗ II 2G Ex ia d IIC 170°C (T3) (-20°C ≤ T _a ≤ +65°C) Testing documented in Test Report No. 08(C)0211 |
| Baseefa04ATEX0383/9 | 12 June 2008 | To permit use of an alternative encapsulant in the hybrid circuits and to permit the introduction of a new drawing listing the possible model names. |
| Baseefa04ATEX0383/10 | 6 August 2008 | To permit the use of an alternative rechargeable cell Sanyo Type UF553450Z. When this cell is used the marking is: ⊗ II 2G Ex ia d IIC T4 (-20°C ≤ T _a ≤ +65°C) Also to permit minor drawing changes not affect the original assessment. Testing documented in Test Report No. GB/BAS/ExTR08.0128/00 |



| Certificate No. | Date | Comments |
|--|------------------|---|
| Baseefa04ATEX0383 Issue 11 | 16 December 2009 | <p>This issue of the certificate incorporates previously issued primary & supplementary certificates into one certificate and confirms the current design meets the requirements of EN 60079-0: 2006 & EN 60079-11: 2007 including the revision of the equipment marking in accordance with these standards.</p> <p>The certificate also permits: -</p> <ol style="list-style-type: none">1) The removal of the alternative rechargeable cell type ICP653450U and therefore the T3 variant of the equipment is now obsolete.2) The alternative fitting of the Hybrid 3 sub-assembly in place of the Hybrid 1A sub-assembly not affecting the original assessment. <p>Certification Drawing No's 5392, P5423 issue 4, P-5425-A4, 5551-CERT, P-5867-CERT Issue 1 and P-5879-CERT Issue 1 were made obsolete.</p> |
| Baseefa04ATEX0383 Issue 12 | 2 December 2011 | <p>This issue of the certificate confirms the current design meets the requirements of EN 60079-0:2009 and adds an updated rechargeable battery drawing. The marking code remains unchanged.</p> |
| For drawings applicable to each issue, see original of that issue. | | |



1 **EC - TYPE EXAMINATION CERTIFICATE**

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

3 EC - Type Examination Certificate Number: **Baseefa04ATEX0383 – Issue 11**

4 Equipment or Protective System: **Gasman Flammable Gas Detector**

5 Manufacturer: **Crowcon Detection Instruments Ltd**

6 Address: **Abingdon, Oxfordshire, OX14 1DY**

7 This equipment or protective system and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

8 Baseefa, Notified Body number 1180, 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 No's. GB/BAS/ExTR09.0166/00

9 Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

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

except in respect of those requirements listed at item 18 of the Schedule.

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 and construction of the specified equipment or protective system. 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 the following :

Ex II 2 G Ex ia d IIC T4 Gb (-20°C ≤ T_a ≤ +65°C)

This certificate may only be reproduced in its entirety, without any change, schedule included.


Baseefa Customer Reference No. 0249

Project File No. 09/0551

This certificate is granted subject to the general terms and conditions of Baseefa. It does not necessarily indicate that the equipment may be used in particular industries or circumstances.

Baseefa

Rockhead Business Park, Staden Lane,
Buxton, Derbyshire SK17 9RZ
Telephone +44 (0) 1298 766600 Fax +44 (0) 1298 766601
e-mail info@baseefa.com web site www.baseefa.com
Baseefa is a trading name of Baseefa Ltd
Registered in England No. 4305578. Registered address as above.


R S SINCLAIR
DIRECTOR
On behalf of
Baseefa



13

Schedule

14

Certificate Number Baseefa04ATEX0383 – Issue 11

15 Description of Equipment or Protective System

The Gasman Flammable Gas Detector is designed to detect the presence of flammable gas, give a visual indication of the concentration, and give audible and visual alarms if a preset level is exceeded. It comprises a rechargeable battery, a flammable gas sensor head, electronic circuits on printed circuit boards, a liquid crystal display, LED's and a piezo sounder, all contained in a plastic enclosure providing a degree of protection of at least IP20. External contacts are provided for recharging, and for serial data communications.

The flammable gas sensor module fitted is known as a flammable i-module. The flammable i-module can be replaced in the apparatus with an oxygen i-module (for oxygen deficiency detection), or a toxic i-module. The permitted i-modules are listed in the User Manual provided by the manufacturer.

The apparatus is not designed for use in oxygen enriched atmospheres.

Charging conditions:

The apparatus must only be recharged or connected to serial communications when in a non-hazardous area, using the following chargers: -

Crowcon desktop charger / interface part number C01940

Crowcon desktop charger part number C01941

Alternatively, any Crowcon charger with an output (U_m) of 9V may be used to charge the apparatus, although when both charging and data communications are required, only charger / interface part number C01940 must be used.

16 Report Number

GB/BAS/ExTR09.0166/00

17 Special Conditions for Safe Use

None.

18 Essential Health and Safety Requirements

All relevant Essential Health and Safety Requirements are covered by the standards listed at item 9.

19 Drawings and Documents

The following drawings are associated and held with IECEx Certificate No. IECEx BAS 05.0038

New drawings submitted for this issue of certificate:

| Number | Sheet | Issue | Date | Description |
|--------------|--------|-------|----------|---|
| 5430-CERT | 1 of 1 | 7 | 10/09 | Gasman Instrument G A - Rechargeable |
| 5423-CD-CERT | 1 of 1 | 6 | 27/10/09 | Gasman Rechargeable - Main PCB (Circuit Diagram) |
| 5425-PL | 1 & 2 | 4 | 27/10/09 | Gasman Rechargeable Main Board Certification Parts List |
| P-5492-A4 | 1 of 1 | 8 | Aug 2009 | Flammable i-Module Certification Parts List |



| Number | Sheet | Issue | Date | Description |
|----------------|--------|-------|----------|--|
| P-5455-A4 | 1 of 1 | 5 | 08/09 | Flammable Gasman Serial / Model No Label |
| P-5516 Issue 4 | 1 of 1 | 4 | 08/09 | Hybrid 1B (Circuit Diagram) |
| 5567-CD-CERT | 1 of 1 | 1 | 29/10/09 | Hybrid 3 (Circuit Diagram) |
| 5567-PCB-CERT | 1 of 1 | 1 | 29/10/09 | Type 3 Hybrid Approval Drawing |
| 5567-PL-CERT | 1 of 1 | 1 | 28/10/09 | Crowcon Type 3 Hybrid Certification Parts List |

Current drawings also associated with this certificate:

| Number | Sheet | Issue | Date | Description |
|-------------------------|--------|-------|-----------|---|
| P-5424-A2 | 1 of 1 | 2 | 08/05 | Main Board Rechargeable PCB & Track Details |
| P-5517 issue 3 | 1 of 1 | 3 | 01/06 | Hybrid 1A (Circuit Diagram) |
| 5407-CERT | 1 of 1 | 7 | 10/07 | Crowcon Type 1A ("Rechargeable") Hybrid Certification Parts List |
| P-5406-A3 | 1 of 1 | 4 | 07/06 | Gasman Type 1A Hybrid Mech and Tracking Details |
| 5411-CERT | 1 of 1 | 6 | 10/07 | Crowcon Type 1B ("Encapsulated Fuse") Hybrid Certification Parts List |
| P-5410-A3 | 1 of 1 | 3 | 07/06 | Gasman Type 1B Hybrid Mech and Tracking Details |
| P-5486 issue 4 | 1 of 1 | 4 | 22-9-06 | Flammable i-Module Tetra, Tetra 3, Gasman |
| P-5475-A3 | 1 to 7 | 3 | 14/9/06 | Flammable i-Module Board |
| P-5490 issue 3 | 1 of 1 | 3 | 13/9/06 | Tetra / Gasman Oxygen iModule (Circuit Diagram) |
| P-5494-A4 | 1 of 1 | 4 | Sept 2006 | Oxygen i-Module Certification Parts List |
| P-5476-A3 | 1 of 1 | 2 | 06/05 | Oxygen i-Module PCB & Track Details (used only for general physical size of module) |
| P-5488 issue 3 | 1 of 1 | 3 | 13/9/06 | Toxic iModule (Circuit Diagram) |
| P-5493-A4 | 1 & 2 | 7 | Jan 2007 | Toxic i-Module Certification Parts List |
| P-5477-A3 | 1 of 1 | 2 | 06/05 | Toxic i-Module PCB & Track Details (used only for general physical size of module) |
| P-5518 issue 3 | 1 of 1 | 3 | 22/09/06 | Tetra/Gasman COSH iModule (Circuit Diagram) |
| P-5844-A4 | 1 & 2 | 2 | 22.9.2006 | Dual Toxic i-Module Certification Parts List |
| P-5526-A3 | 1 of 1 | 1 | 10/05 | COSH i-Module PCB & Track Details (used only for general physical size of module) |
| P-5520 Issue 1 | 1 of 1 | 1 | 6/9/05 | Alphasense COSH iModule Adapter |
| P-5527-A3 | 1 of 1 | 1 | 10/05 | Alphasense D2 COSH i-Module Adapter PCB & Track Details |
| 5553-CERT | 1 of 1 | 1 | 05/08 | Gasman Certification Instrument Names |
| P5427 issue 5 Charger | 1 of 1 | 5 | 12/3/07 | Gasman Charger (Circuit Diagram) |
| P-5428 | 1 to 6 | 4 | 11/1/07 | Gasman (Budgie) Charger PCB |
| P5437 issue 1 Interface | 1 of 2 | 1 | 20/12/04 | Gasman Interface PCB (Circuit Diagram) |
| P-5438-A3 | 1 of 1 | 1 | 02/05 | Gasman Interface PCB and Track Details |
| P-5429-A4 | 1 of 1 | 3,4,5 | 12.3.2007 | Gasman External Charger Certification Parts List |
| P-5439-A4 | 1 of 1 | 1 | 3.3.2005 | Gasman External Interface Certification Parts List |
| P-5460-A2 | 1 of 2 | 3 | 04/05 | Gasman Charger / Interface Assembly |
| P-5495-A4 | 1 of 1 | 3 | 02/07 | Gasman Charger Label |



20 Certificate History

| Certificate No. | Date | Comments |
|----------------------|-------------------|---|
| Baseefa04ATEX0383 | 10 May 2005 | The release of the prime certificate. The associated test and assessment against the requirements of EN 50014: 1997 + Amd. 1 & 2, EN 50018: 2000 + Amd. 1 & EN 50020: 2002 is documented in Test Report No. 04(C)0202. |
| Baseefa04ATEX0383/1 | 22 June 2005 | To permit the use of an alternative rechargeable battery, minor changes to the oxygen and toxic i-modules and other minor drawing changes not affecting the original assessment as documented in Test Report No. 05(C)0256. |
| Baseefa04ATEX0383/2 | 28 February 2006 | To permit the optional use of an alternative sensor module known as dual toxic and other minor drawing changes not affect the original assessment as documented in Test Report No. 05(C)0256/1. |
| Baseefa04ATEX0383/3 | 11 April 2006 | To permit a change of encapsulant in the hybrid circuits. |
| Baseefa04ATEX0383/4 | 12 July 2006 | To permit the use of alternative model names Gas-Mate, Oxy-Mate CR and Toxi-Mate CR and minor additions to the Oxygen and Toxic i-Module Certification Parts Lists. |
| Baseefa04ATEX0383/5 | 15 September 2006 | To permit minor drawing changes, the use of alternative sounders, and the use of alternative CO2 chemical i-module as documented in Test Report No. 06(C)0673. |
| Baseefa04ATEX0383/6 | 8 December 2006 | To permit minor changes to the desktop charger units with part number C01940 and C01941. Also to permit the replacement of desktop charger C01941 with any Crowcon charger with an output (U_m) of 9V. When both charging and data communication are required, only charger / interface part number C01940 must be used as documented in Test Report No. 06(C)1022. |
| Baseefa04ATEX0383/7 | 4 July 2007 | To permit minor changes to drawings and minor modification to circuits. |
| Baseefa04ATEX0383/8 | 4 April 2008 | To permit the use of an alternative cell type ICP653450U. When this cell is used, the marking becomes: Ex II 2G Ex ia d IIC 170°C (T3) (-20°C ≤ T _a ≤ +65°C) Testing documented in Test Report No. 08(C)0211 |
| Baseefa04ATEX0383/9 | 12 June 2008 | To permit use of an alternative encapsulant in the hybrid circuits and to permit the introduction of a new drawing listing the possible model names. |
| Baseefa04ATEX0383/10 | 6 August 2008 | To permit the use of an alternative rechargeable cell Sanyo Type UF553450Z. When this cell is used the marking is: Ex II 2G Ex ia d IIC T4 (-20°C ≤ T _a ≤ +65°C) Also to permit minor drawing changes not affect the original assessment. Testing documented in Test Report No. GB/BAS/ExTR08.0128/00 |



| Certificate No. | Date | Comments |
|--|------------------|---|
| Baseefa04ATEX0383 Issue 11 | 16 December 2009 | <p>This issue of the certificate incorporates previously issued primary & supplementary certificates into one certificate and confirms the current design meets the requirements of EN 60079-0: 2006 & EN 60079-11: 2007 including the revision of the equipment marking in accordance with these standards.</p> <p>The certificate also permits: -</p> <ol style="list-style-type: none">1) The removal of the alternative rechargeable cell type ICP653450U and therefore the T3 variant of the equipment is now obsolete.2) The alternative fitting of the Hybrid 3 sub-assembly in place of the Hybrid 1A sub-assembly not affecting the original assessment. <p>Certification Drawing No's 5392, P5423 issue 4, P-5425-A4, 5551-CERT, P-5867-CERT Issue 1 and P-5879-CERT Issue 1 were made obsolete.</p> |
| For drawings applicable to each issue, see original of that issue. | | |



1 **SUPPLEMENTARY EC - TYPE EXAMINATION CERTIFICATE**

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

3 Supplementary EC - Type Examination Certificate Number: **Baseefa04ATEX0383/10**

4 Equipment or Protective System: **Gasman Flammable Gas Detector**

5 Manufacturer: **Crowcon Detection Instruments Ltd**

6 Address: **Abingdon, Oxfordshire, OX14 1DY**

7 This supplementary certificate extends EC - Type Examination Certificate No. Baseefa04ATEX0383 to apply to equipment or protective systems 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.

This supplementary certificate shall be held with the original certificate.

This certificate may only be reproduced in its entirety, without any change, schedule included.

Baseefa Customer Reference No. 0249

Project File No. 08/0305

This certificate is granted subject to the general terms and conditions of Baseefa. It does not necessarily indicate that the equipment may be used in particular industries or circumstances.

Baseefa

Rockhead Business Park, Staden Lane,
Buxton, Derbyshire SK17 9RZ
Telephone +44 (0) 1298 766600 Fax +44 (0) 1298 766601
e-mail info@baseefa.com web site www.baseefa.com
Baseefa is a trading name of Baseefa Ltd
Registered in England No. 4305578. Registered address as above.

R S SINCLAIR
DIRECTOR
On behalf of
Baseefa



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Schedule

14

Certificate Number Baseefa04ATEX0383/10

15 Description of the variation to the Equipment or Protective System

Variation 10.1

To permit: -

- i) the use of an alternative rechargeable cell Sanyo Type UF553450Z. When this cell is used the marking is Ex iad IIC T4(-20°C ≤ T_a ≤ +65°C).
- ii) minor drawing changes not affecting the original assessment.

16 Report Number

GB/BAS/ExTR08.0128/00

17 Special Conditions for Safe Use

None

18 Essential Health and Safety Requirements

Compliance with the Essential Health and Safety Requirements is not affected by this variation.

19 Drawings and Documents

| Number | Sheet | Issue | Date | Description |
|-----------|--------|-------|-------|--|
| 5430-CERT | 1 of 1 | 5 | 07/08 | Gasman Instrument G A – Rechargeable |
| P-5455-A4 | 1 of 1 | 4 | 05/08 | Flammable Gasman Serial / Model No Label |

The above drawings are common to and held with IECEx Certificate No. IECEx BAS 05,0038 Issue 10



1 **SUPPLEMENTARY EC - TYPE EXAMINATION CERTIFICATE**

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

3 Supplementary EC - Type Examination Certificate Number: **Baseefa04ATEX0383/9**

4 Equipment or Protective System: **Gasman Flammable Gas Detector**

5 Manufacturer: **Crowcon Detection Instruments Ltd**

6 Address: **Abingdon, Oxfordshire, OX14 1DY**

7 This supplementary certificate extends EC - Type Examination Certificate No. Baseefa04ATEX0383 to apply to equipment or protective systems 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.

This supplementary certificate shall be held with the original certificate.

This certificate may only be reproduced in its entirety, without any change, schedule included.

Baseefa Customer Reference No. 0249

Project File No. 07/1070

This certificate is granted subject to the general terms and conditions of Baseefa (2001) Ltd. It does not necessarily indicate that the equipment may be used in particular industries or circumstances.

Baseefa

Rockhead Business Park, Staden Lane,
Buxton, Derbyshire SK17 9RZ
Telephone +44 (0) 1298 766600 Fax +44 (0) 1298 766601
e-mail info@baseefa.com web site www.baseefa.com
Baseefa is a trading name of Baseefa (2001) Ltd
Registered in England No. 4305578 at the above address

R S SINCLAIR
DIRECTOR
On behalf of
Baseefa (2001) Ltd.



13

Schedule

14

Certificate Number Baseefa04ATEX0383/9

15 Description of the variation to the Equipment or Protective System

Variation 9.1

To permit the use of alternative encapsulants in the hybrids as listed on the appropriate parts lists, and to permit the introduction of a new drawing listing the possible model names.

16 Report Number

None

17 Special Conditions for Safe Use

None

18 Essential Health and Safety Requirements

Compliance with the Essential Health and Safety Requirements is not affected by this variation.

19 Drawings and Documents changed or added in this Supplement

| Number | Issue | Date | Description |
|---------------------------------|-------|-------|--|
| 5407-CERT Replaces P-5407-A4 | 7 | 10/07 | Crowcon Type 1A("Rechargeable") Hybrid Certification Parts List |
| 5411-CERT Replaces P-5411-A4 | 6 | 10/07 | Crowcon Type 1B ("Encapsulated Fuse") Hybrid Certification Parts List |
| 5553-CERT Replaces P-5537-A4 | 1 | 05/08 | Gasman Certification Instrument Names |

The above drawings are common to and held with Certificate IECEx BAS 05.0038/9 (report GB/BAS/ExTR07.0191/00).

Drawings and Documents showing the current build options for this apparatus

| Number | Issue | Date | Description |
|---------------------------------|-------|-------------|---|
| 5430-CERT | 4 | 03/08 | Gasman Instrument G A - Rechargeable |
| P5423 issue 4 | 4 | 10/8/06 | Gasman Rechargeable - Main PCB (Circuit Diagram) |
| P-5425-A4 | 3 | August 2006 | Gasman Rechargeable Main Board Certification Parts List |
| P-5424-A2 | 2 | 08/05 | Main Board Rechargeable PCB & Track Details |
| P-5517 issue 3 | 3 | 01/06 | Hybrid 1A (Circuit Diagram) |
| 5407-CERT Replaces P-5407-A4 | 7 | 10/07 | Crowcon Type 1A ("Rechargeable") Hybrid Certification Parts List |
| P-5406-A3 | 4 | 07/06 | Gasman Type 1A Hybrid Mech and Tracking Details |
| P-5406-A3 | 2 | 2005/02 | Gasman Type 1A Hybrid Mech and Tracking Details |
| P-5516 issue 3 | 3 | 10/06 | Hybrid 1B (Circuit Diagram) |



| Number | Issue | Date | Description |
|--------------------------------------|-------|------------|---|
| 5411-CERT Replaces P-5411-A4 | 6 | 10/07 | Crowcon Type 1B ("Encapsulated Fuse") Hybrid Certification Parts List |
| P-5410-A3 | 3 | 07/06 | Gasman Type 1B Hybrid Mech and Tracking Details |
| P-5486 issue 4 | 4 | 22-9-06 | Flammable iModule Tetra, Tetra 3, Gasman |
| P-5492-A4 | 6 | Sept 2006 | Flammable i-Module Certification Parts List |
| P-5475-A3 Sheets 1 to 7 | 3 | 14/9/06 | Flam i-Module Board |
| P-5490 issue 3 | 3 | 13/9/06 | Oxygen iModule (Circuit Diagram) |
| P-5494-A4 | 4 | Sept 2006 | Oxygen iModule Certification Parts List |
| P-5476-A3 | 2 | 06/05 | Oxygen i-Module PCB & Track Details (used only for general physical size of module) |
| P-5488 issue 3 | 3 | 13/9/06 | Toxic iModule (Circuit Diagram) |
| P-5493-A4 Sheets 1 & 2 | 7 | Jan 2007 | Toxic i-Module Certification Parts List |
| P-5477-A3 | 2 | 06/05 | Toxic i-Module PCB & Track Details (used only for general physical size of module) |
| P-5518 issue 3 | 3 | 22/09/06 | Tetra/Gasman COSH iModule (Circuit Diagram) |
| P-5844-A4 Sheets 1 & 2 | 2 | 22.9.2006 | Dual Toxic i-Module Certification Parts List |
| P-5526-A3 | 1 | 10/05 | Dual Toxic i-Module PCB & Track Details (used only for general physical size of module) |
| P-5520 Issue 1 | 1 | 6/9/05 | Alphasense COSH iModule Adapter |
| P-5527-A3 | 1 | 10/05 | Alphasense D2 COSH i-Module Adapter PCB & Track Details |
| P5867-CERT-issue 1 Sheets 1 & 2 | 1 | 27/7/2006 | CO2 electro-chemical sensor i-module |
| P-5879-CERT ISSUE 1 Sheets 1 to 7 | 1 | 27/7/06 | CO2 chemical i-module |
| P-5455-A4 | 3 | 04/06 | Flammable Gasman Serial / Model No Label |
| 5551-CERT | 1 | 03/08 | T3 Rated Flammable Gasman, Serial / Model No Label |
| 5553-CERT Replaces P-5537-A4 | 1 | 05/08 | Gasman Certification Instrument Names |
| P5427 issue 5 Charger | 5 | 12/3/07 | Gasman Charger (Circuit Diagram) |
| P5427 issue 2 Charger Sheet 1 | 2 | 2005/03/15 | Gasman Charger (Circuit Diagram) |
| 5392 | 1 | 3/07 | Gasman Charger Issue 2 PCB Modifications |
| P-5428-A3 | 1 | 2005/02 | Gasman Charger PCB and Track Details |
| P-5428-A3 Sheets 1 to 6 | 4 | 11/1/07 | Gasman (Budgie) Charger PCB |
| P5437 issue 1 Interface Sheet 2 | 1 | 2004/12/20 | Gasman Interface PCB (Circuit Diagram) |
| P-5438-A3 | 1 | 2005/02 | Gasman Interface PCB and Track Details |
| P-5429-A4 | 3,4,5 | 12.3.2007 | Gasman External Charger Certification Parts List |
| P-5429-A4 | 2 | 2005/03/15 | Gasman External Charger Certification Parts List |
| P-5439-A4 | 1 | 2005/03/03 | Gasman External Interface Certification Parts List |

Certificate Number
Baseefa04ATEX0383/9



Issued 12 June 2008
Page 4 of 4

| Number | Issue | Date | Description |
|---------------|--------------|-------------|--|
| P-5460-A2 | 3 | 2005/04 | Gasman Charger / Interface Assembly |
| P-5495-A4 | 3 | 02/07 | Gasman Charger Label |
| 5392 | 1 | 3/07 | Gasman Charger Issue 2 PCB Modifications |



1 **SUPPLEMENTARY EC - TYPE EXAMINATION CERTIFICATE**

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

3 Supplementary EC - Type Examination Certificate Number: **Baseefa04ATEX0383/8**

4 Equipment or Protective System: **Gasman Flammable Gas Detector**

5 Manufacturer: **Crowcon Detection Instruments Ltd**

6 Address: **Abingdon, Oxfordshire, OX14 1DY**

7 This supplementary certificate extends EC - Type Examination Certificate No. Baseefa04ATEX0383 to apply to equipment or protective systems 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.

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Baseefa Customer Reference No. 0249

Project File No. 08/0211

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Baseefa

Rockhead Business Park, Staden Lane,
Buxton, Derbyshire SK17 9RZ
Telephone +44 (0) 1298 766600 Fax +44 (0) 1298 766601
e-mail info@baseefa.com web site www.baseefa.com

Baseefa is a trading name of Baseefa Ltd
Registered in England No. 4305578. Registered address as above.

R S SINCLAIR
DIRECTOR
On behalf of
Baseefa



13

Schedule

14

Certificate Number Baseefa04ATEX0383/8

15 Description of the variation to the Equipment or Protective System

Variation 8.1

To permit the use of an alternative rechargeable cell type ICP653450U. When this cell is used, the marking becomes:

Ⓔ II 2G Ex iad IIC 170°C (T3) (-20°C ≤ Ta ≤ +65°C)

16 Report Number

08(C)0211

17 Special Conditions for Safe Use

None

18 Essential Health and Safety Requirements

Compliance with the Essential Health and Safety Requirements is not affected by this variation.

19 Drawings and Documents

| Number | Issue | Date | Description |
|-----------|-------|-------|--|
| 5430-CERT | 4 | 03/08 | Gasman Instrument G A - Rechargeable |
| 5551-CERT | 1 | 03/08 | T3 Rated Flammable Gasman, Serial / Model No Label |

The above drawings are common to, and held with, Certificate IECEX BAS 05.0038

Drawing 5430-CERT is also common to Certificates Baseefa04ATEX0384 and IECEX BAS 05.0039



1 **SUPPLEMENTARY EC - TYPE EXAMINATION CERTIFICATE**

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

3 Supplementary EC - Type Examination Certificate Number: **Baseefa04ATEX0383/7**

4 Equipment or Protective System: **Gasman Flammable Gas Detector**

5 Manufacturer: **Crowcon Detection Instruments Ltd**

6 Address: **Abingdon, Oxfordshire, OX14 1DY**

7 This supplementary certificate extends EC - Type Examination Certificate No. Baseefa04ATEX0383 to apply to equipment or protective systems 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.

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Baseefa Customer Reference No. 0249

Project File No. 06/0781

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Baseefa

Rockhead Business Park, Staden Lane,
Buxton, Derbyshire SK17 9RZ
Telephone +44 (0) 1298 766600 Fax +44 (0) 1298 766601
e-mail info@baseefa.com web site www.baseefa.com
Baseefa is a trading name of Baseefa (2001) Ltd
Registered in England No. 4305578 at the above address

R S SINCLAIR
DIRECTOR
On behalf of
Baseefa (2001) Ltd.



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Schedule

14

Certificate Number Baseefa04ATEX0383/7

15 Description of the variation to the Equipment or Protective System

Variation 7.1

To permit minor changes to drawings and minor modifications to circuits as listed below.

16 Report Number

None

17 Special Conditions for Safe Use

None

18 Essential Health and Safety Requirements

Compliance with the Essential Health and Safety Requirements is not affected by this variation.

19 Drawings and Documents changed or added in this Supplement

| Number | Issue | Date | Description |
|---------------------------------|-------|-------------|--|
| P-5430-A2 | 3 | 10/06 | Gasman Instrument GA - Rechargeable |
| P-5517 issue 3 | 3 | 01/06 | Hybrid 1A (Circuit Diagram) |
| P-5407-A4 | 6 | August 2006 | Crowcon Type 1A("Rechargeable) Hybrid Certification Parts List |
| P-5516 issue 3 | 3 | 10/06 | Hybrid 1B (Circuit Diagram) |
| P-5411-A4 | 5 | 08/06 | Crowcon Type 1B ("Encapsulated Fuse") Hybrid Certification Parts List |
| P-5518 issue 3 | 3 | 22/09/06 | Tetra / Gasman COSH iModule (Circuit Diagram) |
| P-5844-A4 Sheets 1 & 2 | 2 | 22.9.2006 | Dual Toxic i-Module Certification Parts List |
| P-5490 issue 3 | 3 | 13/9/06 | Tetra / Gasman Oxygen i-Module (Circuit Diagram) |
| P-5494-A4 | 4 | Sept 2006 | Oxygen i-Module Certification Parts List |
| P-5486 issue 4 | 4 | 22-9-06 | Flammable i-Module Tetra, Tetra 3, Gasman |
| P-5492-A4 | 6 | Sept 2006 | Flammable i-Module Certification Parts List |
| P-5475 issue 3 Sheets 1 to 7 | 3 | 14/9/06 | Flammable i-Module Board |
| P-5488 issue 3 | 3 | 13/9/06 | Tetra / Gasman Toxic i-Module (Circuit Diagram) |
| P-5493-A4 Sheets 1 & 2 | 7 | Jan 2007 | Toxic i-Module Certification Parts List |
| P5423 issue 4 | 4 | 10/8/06 | Gasman Rechargeable Main PCB (Circuit Diagram) |
| P-5425-A4 | 3 | Sept 2006 | Gasman Rechargeable Main Board Certification Parts List |
| P-5427 issue 5 Charger | 5 | 12/3/07 | Gasman Charger (Circuit Diagram) |



| Number | Issue | Date | Description |
|----------------------|-------|-----------|--|
| P-5429-A4 | 3,4,5 | 12.3.2007 | Gasman External Charger Certification Parts List |
| P-5428 Sheets 1 to 6 | 4 | 11/1/07 | Gasman (Budgie) Charger PCB |
| P-5495-A4 | 3 | 02/07 | Gasman Charger Label |
| 5392 | 1 | 3/07 | Gasman Charger Issue 2 PCB Modifications |

The above drawings are common to and held with Certificate IECEx BAS 05.0038 (report GB/BAS/ExTR06.0177/00).

Drawings and Documents showing the current build options for this apparatus

| Number | Issue | Date | Description |
|----------------------------|-------|-------------|---|
| P-5430-A2 | 3 | 10/06 | Gasman Instrument G A - Rechargeable |
| P5423 issue 4 | 4 | 10/8/06 | Gasman Rechargeable - Main PCB (Circuit Diagram) |
| P-5425-A4 | 3 | August 2006 | Gasman Rechargeable Main Board Certification Parts List |
| P-5424-A2 | 2 | 08/05 | Main Board Rechargeable PCB & Track Details |
| P-5517 issue 3 | 3 | 01/06 | Hybrid 1A (Circuit Diagram) |
| P-5407-A4 | 6 | August 2006 | Crowcon Type 1A ("Rechargeable") Hybrid Certification Parts List |
| P-5406-A3 | 4 | 07/06 | Gasman Type 1A Hybrid Mech and Tracking Details |
| P-5406-A3 | 2 | 2005/02 | Gasman Type 1A Hybrid Mech and Tracking Details |
| P-5516 issue 3 | 3 | 10/06 | Hybrid 1B (Circuit Diagram) |
| P-5411-A4 | 5 | 08/06 | Crowcon Type 1B ("Encapsulated Fuse") Hybrid Certification Parts List |
| P-5410-A3 | 3 | 07/06 | Gasman Type 1B Hybrid Mech and Tracking Details |
| P-5486 issue 4 | 4 | 22-9-06 | Flammable iModule Tetra, Tetra 3, Gasman |
| P-5492-A4 | 6 | Sept 2006 | Flammable i-Module Certification Parts List |
| P-5475-A3 Sheets 1 to 7 | 3 | 14/9/06 | Flam i-Module Board |
| P-5490 issue 3 | 3 | 13/9/06 | Oxygen iModule (Circuit Diagram) |
| P-5494-A4 | 4 | Sept 2006 | Oxygen iModule Certification Parts List |
| P-5476-A3 | 2 | 06/05 | Oxygen i-Module PCB & Track Details (used only for general physical size of module) |
| P-5488 issue 3 | 3 | 13/9/06 | Toxic iModule (Circuit Diagram) |
| P-5493-A4 Sheets 1 & 2 | 7 | Jan 2007 | Toxic i-Module Certification Parts List |
| P-5477-A3 | 2 | 06/05 | Toxic i-Module PCB & Track Details (used only for general physical size of module) |
| P-5518 issue 3 | 3 | 22/09/06 | Tetra/Gasman COSH iModule (Circuit Diagram) |
| P-5844-A4 Sheets 1 & 2 | 2 | 22.9.2006 | Dual Toxic i-Module Certification Parts List |
| P-5526-A3 | 1 | 10/05 | Dual Toxic i-Module PCB & Track Details (used only for general physical size of module) |
| P-5520 Issue 1 | 1 | 6/9/05 | Alphasense COSH iModule Adapter |



| Number | Issue | Date | Description |
|--------------------------------------|-------|------------|---|
| P-5527-A3 | 1 | 10/05 | Alphasense D2 COSH i-Module Adapter PCB & Track Details |
| P5867-CERT-issue 1 Sheets 1 & 2 | 1 | 27/7/2006 | CO2 electro-chemical sensor i-module |
| P-5879-CERT ISSUE 1 Sheets 1 to 7 | 1 | 27/7/06 | CO2 chemical i-module |
| P-5455-A4 | 3 | 04/06 | Flammable Gasman Serial / Model No Label |
| P-5537-A4 | 2 | 07/06 | Flammable Gasman Certification Instrument Names |
| P5427 issue 5 Charger | 5 | 12/3/07 | Gasman Charger (Circuit Diagram) |
| P5427 issue 2 Charger Sheet 1 | 2 | 2005/03/15 | Gasman Charger (Circuit Diagram) |
| 5392 | 1 | 3/07 | Gasman Charger Issue 2 PCB Modifications |
| P-5428-A3 | 1 | 2005/02 | Gasman Charger PCB and Track Details |
| P-5428-A3 Sheets 1 to 6 | 4 | 11/1/07 | Gasman (Budgie) Charger PCB |
| P5437 issue 1 Interface Sheet 2 | 1 | 2004/12/20 | Gasman Interface PCB (Circuit Diagram) |
| P-5438-A3 | 1 | 2005/02 | Gasman Interface PCB and Track Details |
| P-5429-A4 | 3,4,5 | 12.3.2007 | Gasman External Charger Certification Parts List |
| P-5429-A4 | 2 | 2005/03/15 | Gasman External Charger Certification Parts List |
| P-5439-A4 | 1 | 2005/03/03 | Gasman External Interface Certification Parts List |
| P-5460-A2 | 3 | 2005/04 | Gasman Charger / Interface Assembly |
| P-5495-A4 | 3 | 02/07 | Gasman Charger Label |
| 5392 | 1 | 3/07 | Gasman Charger Issue 2 PCB Modifications |



1 **SUPPLEMENTARY EC - TYPE EXAMINATION CERTIFICATE**

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

3 Supplementary EC - Type Examination Certificate Number: **Baseefa04ATEX0383/6**

4 Equipment or Protective System: **Gasman Flammable Gas Detector**

5 Manufacturer: **Crowcon Detection Instruments Ltd**

6 Address: **Abingdon, Oxfordshire, OX14 1DY**

7 This supplementary certificate extends EC - Type Examination Certificate No. Baseefa04ATEX0383 to apply to equipment or protective systems 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.

This supplementary certificate shall be held with the original certificate.

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Baseefa Customer Reference No. 0249

Project File No. 06/1022

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Baseefa

Rockhead Business Park, Staden Lane,
Buxton, Derbyshire SK17 9RZ
Telephone +44 (0) 1298 766600 Fax +44 (0) 1298 766601
e-mail info@baseefa.com web site www.baseefa.com
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DIRECTOR
On behalf of
Baseefa (2001) Ltd.



13

Schedule

14

Certificate Number Baseefa04ATEX0383/6

15 Description of the variation to the Equipment or Protective System

Variation 6.1

To permit minor changes to the desktop charger units with part number C01940 and C01941.

Variation 6.2

When only charging of the apparatus is required, the desktop charger part number C01941 may be replaced by any Crowcon charger with an output (U_m) of 9V.

When both charging and data communication are required, only charger / interface part number C01940 must be used.

16 Report Number

06(C)1022, held with this Certificate.

17 Special Conditions for Safe Use

None

18 Essential Health and Safety Requirements

Compliance with the Essential Health and Safety Requirements is not affected by this variation.

19 Drawings and Documents

| Number | Issue | Date | Description |
|------------------------|-------|-----------|--|
| P-5427 issue 3 Charger | 3 | 23/11/06 | Gasman Charger (Circuit Diagram) |
| P-5429-A4 | 3 | 7.12.2006 | Gasman External Charger Certification Parts List |
| P-5428 Sheets 1 to 6 | 3 | 6/12/06 | Gasman (Budgie) Charger PCB |

The above drawings are common to and held with Certificate IECEx BAS 05.0038 (report GB/BAS/ExTR06.0172/00)



1 **SUPPLEMENTARY EC - TYPE EXAMINATION CERTIFICATE**

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

3 Supplementary EC - Type **Baseefa04ATEX0383/5**
Examination Certificate Number:

4 Equipment or Protective System: **Gasman Flammable Gas Detector**

5 Manufacturer: **Crowcon Detection Instruments Ltd**

6 Address: **Abingdon, Oxfordshire, OX14 1DY**

7 This supplementary certificate extends EC - Type Examination Certificate No. Baseefa04ATEX0383 to apply to equipment or protective systems 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.

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Baseefa Customer Reference No. 0249

Project File No. 06/0673

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Baseefa

Rockhead Business Park, Staden Lane,
Buxton, Derbyshire SK17 9RZ
Telephone +44 (0) 1298 766600 Fax +44 (0) 1298 766601
e-mail info@baseefa.com web site www.baseefa.com
Baseefa is a trading name of Baseefa (2001) Ltd
Registered in England No. 4305578 at the above address



R S SINCLAIR
DIRECTOR
On behalf of
Baseefa (2001) Ltd.



13

Schedule

14

Certificate Number Baseefa04ATEX0383/5

15 **Description of the variation to the Equipment or Protective System**

Variation 5.1

To permit minor changes to drawings, the use of alternative sounders, and the use of an optional alternative CO2 chemical i-module.

16 **Report Number**

06(C)0673

17 **Special Conditions for Safe Use**

None

18 **Essential Health and Safety Requirements**

Compliance with the Essential Health and Safety Requirements is not affected by this variation.

19 **Drawings and Documents**

| Number | Issue | Date | Description |
|--------------------------------------|-------|-------------|---|
| P-5406-A3 | 4 | 07/06 | Gasman, Type 1A Hybrid Mech and Tracking Details |
| P-5410-A3 | 3 | 07/06 | Gasman Type 1B Hybrid Mech and Tracking Details |
| P-5425-A4 | 3 | August 2006 | Gasman Rechargeable Main Board Certification Parts List |
| P-5486 issue 3 | 3 | 10-11-05 | Tetra / Gasman Flammable i-module |
| P5867-CERT-issue 1 Sheets 1 & 2 | 1 | 27/7/2006 | CO2 electro-chemical sensor i-module |
| P-5879-CERT ISSUE 1 Sheets 1 to 7 | 1 | 27/7/06 | CO2 chemical i-module |

The above drawings are common to and held with Certificate IECEX BAS 05.0038 (report GB/BAS/ExTR06.0104/00)



1 SUPPLEMENTARY EC - TYPE EXAMINATION CERTIFICATE

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

3 Supplementary EC - Type Examination Certificate Number: Baseefa04ATEX0383/4

4 Equipment or Protective System: Gasman Flammable Gas Detector

5 Manufacturer: Crowcon Detection Instruments Ltd

6 Address: Abingdon, Oxfordshire, OX14 1DY

7 This supplementary certificate extends EC - Type Examination Certificate No. Baseefa04ATEX0383 to apply to equipment or protective systems 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.

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Baseefa Customer Reference No. 0249

Project File No. 06/0425

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Rockhead Business Park, Staden Lane,
Buxton, Derbyshire SK17 9RZ
Telephone +44 (0) 1298 766600 Fax +44 (0) 1298 766601
e-mail info@baseefa.com web site www.baseefa.com
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Schedule

14

Certificate Number Baseefa04ATEX0383/4

15

Description of the variation to the Equipment or Protective System

Variation 4.1

To permit the use of alternative model names **Gas-Mate CR**, **Oxy-Mate CR** and **Toxi-Mate CR**, and to permit minor additions to the Oxygen and Toxic i-Module Certification Parts Lists.

16

Report Number

None

17

Special Conditions for Safe Use

None

18

Essential Health and Safety Requirements

Compliance with the Essential Health and Safety Requirements is not affected by this variation.

19

Drawings and Documents

| Number | Issue | Date | Description |
|---------------------------|-------|----------|---|
| P-5455-A4 | 3 | 04/06 | Flammable Gasman Serial / Model No Label |
| P-5537-A4 | 2 | 07/06 | Flammable Gasman Certification Instrument Names |
| P-5493-A4 Sheets 1 & 2 | 5 | Apr 2006 | Toxic i-Module Certification Parts List |
| P-5494-A4 | 3 | Apr 2006 | Oxygen i-Module Certification Parts List |

The above drawings are common to and held with Certificate IECEx BAS 05.0038/4.



1 **SUPPLEMENTARY EC - TYPE EXAMINATION CERTIFICATE**

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

3 Supplementary EC - Type Examination Certificate Number: **Baseefa04ATEX0383/3**

4 Equipment or Protective System: **Gasman Flammable Gas Detector**

5 Manufacturer: **Crowcon Detection Instruments Ltd**

6 Address: **Abingdon, Oxfordshire, OX14 1DY**

7 This supplementary certificate extends EC - Type Examination Certificate No. Baseefa04ATEX0383 to apply to equipment or protective systems 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.

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Baseefa Customer Reference No. 0249

Project File No. 06/0285

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Rockhead Business Park, Staden Lane,
Buxton, Derbyshire SK17 9RZ
Telephone +44 (0) 1298 766600 Fax +44 (0) 1298 766601
e-mail info@baseefa.com web site www.baseefa.com
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R S SINCLAIR
DIRECTOR
On behalf of
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Schedule

14

Certificate Number Baseefa04ATEX0383/3

15 Description of the variation to the Equipment or Protective System

Variation 3.1

To permit a change of encapsulant in the hybrid circuits.

16 Report Number

None

17 Special Conditions for Safe Use

None

18 Essential Health and Safety Requirements

Compliance with the Essential Health and Safety Requirements is not affected by this variation.

19 Drawings and Documents

| Number | Issue | Date | Description |
|-----------|-------|------------|---|
| P-5407-A4 | 5 | March 2006 | Crowcon Type 1A ("Rechargeable") Hybrid Certification Parts List |
| P-5406-A3 | 3 | 03/06 | Gasman Type 1A Hybrid Mech and Tracking Details |
| P-5411-A4 | 4 | 03/06 | Crowcon Type 1B ("Encapsulated Fuse") Hybrid Certification Parts List |
| P-5410-A3 | 2 | 03/06 | Gasman Type 1B Hybrid Mech and Tracking Details |

The above drawings are common to and held with report GB/BAS/ExTR06.0029/00 (Certificate IECEx BAS 05.0038)



1 **SUPPLEMENTARY EC - TYPE EXAMINATION CERTIFICATE**

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

3 Supplementary EC - Type Examination Certificate Number: **Baseefa04ATEX0383/2**

4 Equipment or Protective System: **Gasman Flammable Gas Detector**

5 Manufacturer: **Crowcon Detection Instruments Ltd**

6 Address: **Abingdon, Oxfordshire, OX14 1DY**

7 This supplementary certificate extends EC - Type Examination Certificate No. Baseefa04ATEX0383 to apply to equipment or protective systems 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.

This supplementary certificate shall be held with the original certificate.

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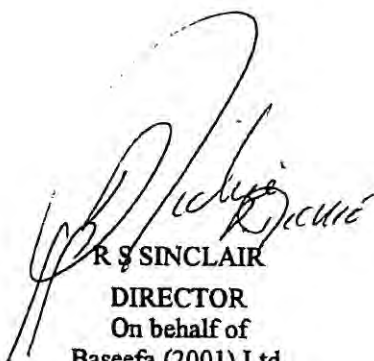
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Project File No. 05/0256

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Baseefa

Rockhead Business Park, Staden Lane,
Buxton, Derbyshire SK17 9RZ
Telephone +44 (0) 1298 766600 Fax +44 (0) 1298 766601
e-mail info@baseefa.com web site www.baseefa.com
Baseefa is a trading name of Baseefa (2001) Ltd
Registered in England No. 4305578 at the above address



R. S. SINCLAIR
DIRECTOR
On behalf of
Baseefa (2001) Ltd.



13

Schedule

14

Certificate Number Baseefa04ATEX0383/2

15 Description of the variation to the Equipment or Protective System

Variation 2.1

To permit various changes to the drawings listed below, and the optional use of an alternative sensor module known as dual toxic. These changes do not impair the safety assessment of the apparatus and do not affect the marking.

16 Report Number

05(C)0256/1

17 Special Conditions for Safe Use

None

18 Essential Health and Safety Requirements

Compliance with the Essential Health and Safety Requirements is not affected by this variation.

19 Drawings and Documents

| Number | Issue | Date | Description |
|---------------------------|-------|------------|---|
| P-5407-A4 | 4 | Sept 2005 | Crowcon Type 1A ("Rechargeable") Hybrid Certification Parts List |
| P-5411-A4 | 3 | 10/05 | Crowcon Type 1B ("Encapsulated Fuse") Hybrid Certification Parts List |
| P-5516 | 2 | 07/05 | Hybrid 1B (Circuit Diagram) |
| P-5424-A2 | 2 | 08/05 | Main Board Rechargeable PCB & Track Details |
| P-5492-A4 | 5 | Feb 2006 | Flammable i-module Certification Parts List |
| P-5475-A3 | 2 | 06 / 05 | Flam i-Module PCB & Track Details (used only for general physical size of module) |
| P-5493-A4 Sheets 1 & 2 | 4 | Nov 2005 | Toxic i-Module Certification Parts List |
| P-5518 issue 1 | 1 | 12/10/05 | Tetra/Gasman COSH iModule (Circuit Diagram including C and L) |
| P-5844-A4 Sheets 1 & 2 | 1 | 20.10.2005 | Dual Toxic i-Module Certification Parts List |
| P-5526-A3 | 1 | 10/05 | Dual Toxic i-Module PCB & Track Details (used only for general physical size of module) |
| P-5520 Issue 1 | 1 | 6/9/05 | Alphasense COSH iModule Adapter |
| P-5527-A3 | 1 | 10/05 | Alphasense D2 COSH i-Module Adapter PCB & Track Details |

The above drawings are common to and held with reports UK/BAS/04/0202 and UK/BAS/05/0256/1 (Certificate IECEX BAS 05.0038)



1 **SUPPLEMENTARY EC - TYPE EXAMINATION CERTIFICATE**

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

3 Supplementary EC - Type Examination Certificate Number: **Baseefa04ATEX0383/1**

4 Equipment or Protective System: **Gasman Flammable Gas Detector**

5 Manufacturer: **Crowcon Detection Instruments Ltd**

6 Address: **Abingdon, Oxfordshire, OX14 1DY**

7 This supplementary certificate extends EC - Type Examination Certificate No. Baseefa04ATEX0383 to apply to equipment or protective systems 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.

This supplementary certificate shall be held with the original certificate.

This certificate may only be reproduced in its entirety, without any change, schedule included.

Baseefa Customer Reference No. 0249

Project File No. 05/0256

This certificate is granted subject to the general terms and conditions of Baseefa (2001) Ltd. It does not necessarily indicate that the equipment may be used in particular industries or circumstances.

Baseefa

Rockhead Business Park, Staden Lane,
Buxton, Derbyshire SK17 9RZ
Telephone +44 (0) 1298 766600 Fax +44 (0) 1298 766601
e-mail info@baseefa.com web site www.baseefa.com
Baseefa is a trading name of Baseefa (2001) Ltd
Registered in England No. 4305578 at the above address


P. SINCLAIR
DIRECTOR
On behalf of
Baseefa (2001) Ltd.



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Schedule

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Certificate Number Baseefa04ATEX0383/1

15 Description of the variation to the Equipment or Protective System

Variation 1.1

To permit:

- a) The use of an alternative rechargeable battery as defined on the G A
- b) Minor changes to the oxygen and toxic i-modules
- c) Various changes to drawings which affect documentation but do not make any technical change

16 Report Number

05(C)0256

17 Special Conditions for Safe Use

None

18 Essential Health and Safety Requirements

Compliance with the Essential Health and Safety Requirements is not affected by this variation.

19 Drawings and Documents

| Number | Issue | Date | Description |
|--------------------------------|-------|-----------|---|
| P-5430-A2 | 2 | 06/05 | Gasman Instrument G A - Rechargeable |
| P5423-3 | 3 | 7/6/05 | Gasman Rechargeable - Main PCB (circuit diagram, also gives total C and L) |
| P-5425-A4 | 2 | June 2005 | Gasman Rechargeable Main Board Certification Parts List |
| P-5407-A4 | 2 | May 2005 | Crowcon Type 1A ("Rechargeable") Hybrid Certification Parts List |
| P-5517 Issue 1 | 1 | 06/05 | Hybrid 1A (Circuit Diagram) |
| P-5411-A4 | 2 | June 2005 | Crowcon Type 1B ("Encapsulated Fuse") Hybrid Certification Parts List |
| P-5516 | 1 | 06/05 | Hybrid 1B (Circuit Diagram) |
| P-5490 issue 2 Sheet 1 of 3 | 2 | 4-2-2005 | Tetra/Gasman Oxygen iModule (Circuit Diagram including C and L) |
| P-5494-A4 | 2 | May 2005 | Oxygen iModule Certification Parts List |
| P-5476-A3 | 2 | 06/05 | Oxygen i-Module PCB & Track Details (used only for general physical size of module) |
| P-5488 issue 2 | 2 | 15/6/05 | Tetra/Gasman Toxic iModule (Circuit Diagram including C and L) |
| P-5493-A4 Sheets 1 & 2 | 2 | May 2005 | Toxic i-Module Certification Parts List |
| P-5477-A3 | 2 | 06/05 | Toxic i-Module PCB & Track Details (used only for general physical size of module) |

The above drawings are held with Certificate IECEx BAS 05.0038



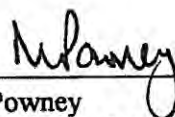
CERTIFICATION REPORT

05(C)0256

REPORT ON. Changes to Gasman Gas Detector
DATED 22 June 2005
REGISTRATION No. 0249
CUSTOMER Crowcon Detection Instruments Ltd
ADDRESS 2 Blacklands Way, Abingdon Business Park
Abingdon, Oxfordshire, OX14 1DY

Prepared by: 
B D Parkinson
Certification Engineer

Checked and
Approved by:


M Powney
Certification Manager

Where values of uncertainty of measurement are given, these are expressed at the 95% confidence level unless otherwise stated.

This confidential document has been prepared by Baseefa (2001) Ltd. for use by the Customer. It may be reproduced only in its entirety and without change.

Baseefa
Rockhead Business Park, Staden Lane,
Buxton, Derbyshire, SK17 9RZ
Telephone +44 (0) 1298 766600 Fax +44 (0) 1298 766601
e-mail info@baseefa.com web site www.baseefa.com
Registered in England No. 4305578 at the above address

INDEX FOR CERTIFICATION REPORT 05(C)0256

| <u>Section</u> | <u>Page</u> |
|--------------------------------------|-------------|
| Assessment narrative and conclusions | 3 |
| Compliance checklists | |
| None | |

Baseefa tests

None

The signatures, date and other information on the cover sheet apply to all the above.

Those signing the front sheet of this report do so on behalf of Baseefa (2001) Ltd.

| <u>Annexed Documents</u> | <u>No. of Pages</u> |
|---|---------------------|
| Baseefa reports and Baseefa subcontractors reports with own cover | |
| None | |
| Manufacturer supplied reports and information | |
| None | |
| Other reports and information | |
| None | |

Responsibility for individual documents remains with the originator of the individual document.

1 INTRODUCTION

The Gasman Flammable Gas Detector has already been tested and certified to the requirements of EN 50014: 1997 + Amendments 1 & 2, EN 50020: 2002, EN 50018: 2000 + Amendment 1 and European Directive 94/9/EC for a marking of Ex II 2G, EEx iad IIC T4 ($-20^{\circ}\text{C} \leq T_a \leq +65^{\circ}\text{C}$), and the Gasman Oxygen / Toxic Gas Detector to the requirements of EN 50014: 1997 + Amendments 1 & 2, EN 50020: 2002 and European Directive 94/9/EC for a marking of Ex II 1G, EEx ia IIC T4 ($-20^{\circ}\text{C} \leq T_a \leq +65^{\circ}\text{C}$).

This report covers the assessment and testing of the changes requested by the manufacturer, to ensure that the certification is still valid.

No checklists are included in this report, since only capacitance and temperature assessment are affected with respect to EN 50014 and EN 50020; and compliance with EN 50018 is not affected by these changes.

2 DESCRIPTION

The following changes were considered in this report:

- a) Assessment of mechanical changes (to both the enclosure and the main PCB) to the non rechargeable instrument, to permit the use of type CR2 primary cells instead of the original coin cell type CR2477.
- b) Tests on the new primary cells to confirm their suitability for the temperature class of the apparatus.
- c) Tests on an alternative rechargeable cell to confirm its suitability for the temperature class of the apparatus.
- d) Assessment of minor changes to the oxygen and toxic i-modules, including a small increase of capacitance and the use of alternative sensor cells.
- e) Various changes to drawings due to rearrangement of the schematics. These changes affect the documents, but do not result in any technical change.

3 DRAWINGS

The drawings shown below are those finally presented for certification following discussions to ensure that appropriate information and detail is provided to verify compliance and to reflect the results of the assessment detailed in the following sections of this report.

| <u>Number</u> | <u>Issue</u> | <u>Date</u> | <u>Description</u> |
|----------------|--------------|-------------|--|
| P-5430-A2 | 2 | 06/05 | Gasman Instrument G A - Rechargeable |
| P5423-3 | 3 | 7/6/05 | Gasman Rechargeable - Main PCB (circuit diagram, also gives total C and L) |
| P-5425-A4 | 2 | June 2005 | Gasman Rechargeable Main Board Certification Parts List |
| P-5407-A4 | 2 | May 2005 | Crowcon Type 1A ("Rechargeable") Hybrid Certification Parts List |
| P-5517 Issue 1 | 1 | 06/05 | Hybrid 1A (Circuit Diagram) |

| <u>Number</u> | <u>Issue</u> | <u>Date</u> | <u>Description</u> |
|-----------------------------|--------------|-------------|---|
| P-5411-A4 | 2 | June 2005 | Crowcon Type 1B ("Encapsulated Fuse") Hybrid Certification Parts List |
| P-5516 | 1 | 06/05 | Hybrid 1B (Circuit Diagram) |
| P-5472-A2 | 2 | 06/05 | Gasman Instrument G A - Non Rechargeable |
| P5401 Issue 3 | 3 | 5/5/05 | Gasman (Budgie) non-rechargeable SM6361 (circuit diagram, also gives total C and L) |
| P-5403-A4 | 2 | May 2005 | Gasman non Rechargeable Main Board Certification Parts List |
| P-5402-A2 | 2 | 05/05 | Main Board Non-rechargeable PCB & Track Details |
| P-5499-A4 | 2 | 06/05 | Gasman Conformal Coating of Non-rechargeable Main PCB |
| P-5415-A4 | 2 | June 2005 | Crowcon Type 2 ("Non Rechargeable") Hybrid Certification Parts List |
| P5506 Issue 1 | 1 | 1/2/05 | Gasman Type 2 Hybrid (Circuit Diagram) |
| P-5490 issue 2 Sheet 1 of 3 | 2 | 4-2-2005 | Tetra/Gasman Oxygen iModule (Circuit Diagram including C and L) |
| P-5494-A4 | 2 | May 2005 | Oxygen iModule Certification Parts List |
| P-5476-A3 | 2 | 06/05 | Oxygen i-Module PCB & Track Details (used only for general physical size of module) |
| P-5488 issue 2 | 2 | 15/6/05 | Tetra/Gasman Toxic iModule (Circuit Diagram including C and L) |
| P-5493-A4 Sheets 1 & 2 | 2 | May 2005 | Toxic i-Module Certification Parts List |
| P-5477-A3 | 2 | 06/05 | Toxic i-Module PCB & Track Details (used only for general physical size of module) |

4 ASSESSMENT

4.1 ENCLOSURES

4.1.1 The changes to the enclosure of the non rechargeable instrument are to its overall dimensions to allow inclusion of the physically larger primary cell. The materials used are the same as the previous version, so it is not considered necessary to repeat the drop test.

4.1.2 The enclosure for the rechargeable instrument is unchanged since the new cell for this is from a different manufacturer but of the same physical dimensions.

4.2 I-MODULES & CAPACITANCE

4.2.1 The changes to the oxygen and toxic i-modules increase their capacitance by 0.9nF, which is insignificant in comparison to the 2.4μF or 2.7μF already present in these modules, and therefore acceptable without test.

4.2.2 The changes to the non-rechargeable PCB include the addition of capacitor C6 (1.2μF maximum). This results in the worst case capacitance at 7.14V increasing to 13.2μF instead of the 12μF quoted initially, and the Factor of Safety is still at least 1.5 and therefore acceptable.

4.3 BATTERY TEMPERATURES

- 4.3.1 Tests showed that the following type CR2 cells are acceptable for Temperature Class T4 in ambient temperatures up to 65°C, with a margin of at least 24K: Panasonic Power Lithium, GP Photo Lithium, Maxell Photo-Power Lithium and Energizer Photo Lithium. The results are recorded on Test Record Sheets TR/05/0256/01 and TR/05/0256/03, filed with Certificate IECEx BAS 05.0038.
- 4.3.2 Tests showed that Samsung cells type ICP653450T are acceptable for Temperature Class T4 in ambient temperatures up to 65°C, with a margin of at least 6K. The results are recorded on Test Record Sheet TR/05/0256/02, filed with Certificate IECEx BAS 05.0038.

4.4 SEGREGATION

The main PCB for the non rechargeable instrument has been rearranged to accommodate the larger cell and its holder. Segregation where required has been satisfactorily retained. Varnish is still applied to certain areas as specified in the original documentation. The PCB for the rechargeable instrument has been changed in only minor areas.

4.5 RATING OF SAFETY COMPONENTS

Resistor R13 on the non-rechargeable Main PCB has been changed from 1kohm, 1%, 100mW to 270ohms, 5%, 250mW. The current which can flow through it is 23mA, which has a Factor of Safety in excess of 200 at 5.9V, and is easily acceptable. The resistor rating (W1) is 250mW, and it operates (W2) at less than 136mW. The ratio W2/W1 is 0.54, so the resistor is adequately rated.

4.6 GENERAL

The other changes to drawings are the result of a change to the presentation of the circuit diagrams. This has caused various cross references on drawings to change, but the technical content is unaffected.

5. CONCLUSIONS

The changes described above comply with the requirements of the Standards and may be included in Supplements to Certificates Baseefa04ATEX0383 and Baseefa04ATEX0384.



1 **EC - TYPE EXAMINATION CERTIFICATE**

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

3 EC - Type Examination Certificate Number: **Baseefa04ATEX0383**

4 Equipment or Protective System: **Gasman Flammable Gas Detector**

5 Manufacturer: **Crowcon Detection Instruments Ltd**

6 Address: **Abingdon, Oxfordshire, OX14 1DY**

7 This equipment or protective system and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

8 Baseefa (2001) Ltd., Notified Body number 1180, 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 No. 04(C)0202

9 Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN 50014: 1997 + Amendments 1 & 2 EN 50020: 2002 EN 50018: 2000 + Amendment 1

except in respect of those requirements listed at item 18 of the Schedule.

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 and construction of the specified equipment or protective system. 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 the following :

Ⓔ II 2G EEx iad IIC T4 (-20°C ≤ Ta ≤ +65°C)

This certificate may only be reproduced in its entirety, without any change, schedule included.

Baseefa Customer Reference No. 0249

Project File No. 04/0202

This certificate is granted subject to the general terms and conditions of Baseefa (2001) Ltd. It does not necessarily indicate that the equipment may be used in particular industries or circumstances.

Baseefa

Rockhead Business Park, Staden Lane,
Buxton, Derbyshire SK17 9RZ
Telephone +44 (0) 1298 766600 Fax +44 (0) 1298 766601
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R S SINCLAIR
DIRECTOR
On behalf of
Baseefa (2001) Ltd.



13

Schedule

14

Certificate Number Baseefa04ATEX0383

15 Description of Equipment or Protective System

The Gasman Flammable Gas Detector is designed to detect the presence of flammable gas, give a visual indication of the concentration, and give audible and visual alarms if a preset level is exceeded. It comprises a rechargeable battery, a flammable gas sensor head, electronic circuits on printed circuit boards, a liquid crystal display, LED's and a piezo sounder, all contained in a plastic enclosure providing a degree of protection of at least IP20. External contacts are provided for recharging, and for serial data communications.

The apparatus must only be recharged or connected to serial communications when in a non-hazardous area, and using a Crowcon desktop charger or charger / interface part number C01940 or C01941.

Variation 0.1

The flammable gas sensor module is known as a flammable i-module. This variation permits the flammable i-module to be replaced by an oxygen i-module (for oxygen deficiency detection), or a toxic i-module. The permitted i-modules are listed in the User Manual provided by the manufacturer.

The apparatus is not designed for use in oxygen enriched atmospheres.

16 Report Number

04(C)0202

17 Special Conditions for Safe Use

None

18 Essential Health and Safety Requirements

All relevant Essential Health and Safety Requirements are covered by the standards listed at item 9.

19 Drawings and Documents

| Number | Issue | Date | Description |
|-----------|-------|------------|--|
| P-5430-A2 | 1 | 2005/02 | Gasman Instrument G A - Rechargeable |
| P5423-2 | 2 | 2005/02/16 | Gasman Rechargeable - Main PCB (circuit diagram, also gives total C and L) |
| P-5425-A4 | 1 | 2005/02 | Gasman Rechargeable Main Board Certification Parts List |
| P-5424-A2 | 1 | 2005/02 | Main Board Rechargeable PCB & Track Details |
| P-5407-A4 | 1 | 2005/02 | Crowcon Type 1A ("Rechargeable") Hybrid Certification Parts List |
| P-5406-A3 | 1 | 2005/02 | Gasman Type 1A Hybrid Mech and Tracking Details |
| P-5406-A3 | 2 | 2005/02 | Gasman Type 1A Hybrid Mech and Tracking Details |
| P-5411-A4 | 1 | 2005/02 | Crowcon Type 1B ("Encapsulated Fuse") Hybrid Certification Parts List |



| Number | Issue | Date | Description |
|---------------------------------------|-------|------------|---|
| P-5410-A3 | 1 | 2005/02 | Gasman Type 1B Hybrid Mech and Tracking Details |
| P-5486 issue 1 Sheet 1 of 2 | 1 | 2004/12/07 | Flammable iModule (Circuit Diagram including C and L) |
| P-5492-A4 | 1 | 2005/02 | Flammable i-Module Certification Parts List |
| P-5475-A3 | 1 | 2005/02 | Flam i-Module PCB & Track Details (used only for general physical size of module) |
| P-5490 issue 1 Sheet 1 of 3 | 1 | 2005/01/12 | Oxygen iModule (Circuit Diagram including C and L) |
| P-5494-A4 | 1 | 2005/02 | Oxygen iModule Certification Parts List |
| P-5476-A3 | 1 | 2005/02 | Oxygen i-Module PCB & Track Details (used only for general physical size of module) |
| P-5488 issue 1 | 1 | 2005/02/25 | Toxic iModule (Circuit Diagram including C and L) |
| P-5493-A4 Sheets 1 & 2 | 1 | 2005/02 | Toxic i-Module Certification Parts List |
| P-5477-A3 | 1 | 2005/02 | Toxic i-Module PCB & Track Details (used only for general physical size of module) |
| P-5455-A4 | 2 | 2005/05 | Flammable Gasman Serial / Model No Label |
| P5427 issue 1 Charger | 1 | 2004/11/30 | Gasman Charger (Circuit Diagram) |
| P5427 issue 2 Charger Sheet 1 | 2 | 2005/03/15 | Gasman Charger (Circuit Diagram) |
| P-5428-A3 | 1 | 2005/02 | Gasman Charger PCB and Track Details |
| P-5428-A3 | 2 | 2005/03 | Gasman Charger PCB and Track Details |
| P5437 issue 1 Interface Sheet 2 | 1 | 2004/12/20 | Gasman Interface PCB (Circuit Diagram) |
| P-5438-A3 | 1 | 2005/02 | Gasman Interface PCB and Track Details |
| P-5429-A4 | 1 | 2005/03/03 | Gasman External Charger Certification Parts List |
| P-5429-A4 | 2 | 2005/03/15 | Gasman External Charger Certification Parts List |
| P-5439-A4 | 1 | 2005/03/03 | Gasman External Interface Certification Parts List |
| P-5460-A2 | 3 | 2005/04 | Gasman Charger / Interface Assembly |

The above drawings are held with Certificate IECEx BAS 05.0038