



SERVOTOUGH FluegasExact 2700 CERTIFICATION MANUAL

Part Number: 02700008D
Revision: 7
Language: UK English



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SECTION 1 INTRODUCTION

Servomex 2700 Series analysers have been approved by various authorities for installation in hazardous areas. The certification offered with a specific analyser will depend upon the analyser specification and country of delivery. See the certification labels attached to the analyser for approval details.

The installer and/or the user of the analyser must be satisfied that the installation complies with any "Special Conditions for Safe Use" or "Schedule of Limitations" contained in the following Certificates.

If the analyser is installed in a hazardous area then electrical power and other connecting cables should be installed and protected according to conditions on the relevant certificates, national wiring regulations, hazardous area codes of practice and local authority regulations.

About this manual

Ref: 02700/008D/7
Order as part no: 02700008D

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SECTION 2

EU DECLARATION OF CONFORMITY

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EU DECLARATION OF CONFORMITY

This declaration of conformity is issued under the sole responsibility of the manufacturer.

Equipment Type: **SERVOTOUGH Fluegas (02700D) combustion gas analyser comprising a CONTROL UNIT and SENSOR HEAD and (optional) FLOW ALARM and (optional) UTILITY PANEL**

Directive **ATEX 2014/34/EU**

02710 Control Unit

EU Type Examination Certificate: ITS10ATEX47005X Intertek 2575

Harmonised Standards used: EN 60079-11:2012, EN 60079-15:2010

Other Standards used: EN 60079-0:2012, EN 60079-31:2009 (See Note)

02720 Sensor Head

EU Type Examination Certificate: Baseefa12ATEX0073X SGS Fimko 0598

Harmonised Standards used:

Other Standards used: IEC 60079-0:2011 (See Note)
EN 60079-2:2007

02720 Flow Alarm

EU Type Examination Certificate: Baseefa11ATEX0263X SGS Fimko 0598

Harmonised Standards used: EN 60079-15:2010

Other Standards used: IEC 60079-0:2011 (See Note)
EN 60079-31:2009

NOTE: THE REQUIREMENTS OF THESE STANDARDS HAVE BEEN CHECKED AGAINST EN IEC 60079-0:2018, EN 60079-2:2014 AND EN 60079-31:2014 AND THERE WERE NO DIFFERENCES AFFECTING THE LATEST TECHNICAL KNOWLEDGE FOR THE PRODUCT IDENTIFIED ON THIS DECLARATION.

Directive **Low Voltage (LVD) 2014/35/EU**

Standards & Specifications used: EN 61010-1:2010 (3rd Edition) Servomex Report Reference: 02700A008

Directive **Electromagnetic Compatibility (EMC) 2014/30/EU**

Standards & Specifications used: EN 61326-1:2013 Servomex Report Reference: 02700A013

Directive **Restriction of Hazardous Substances (RoHS 2) 2011/65/EU**

Standards & Specifications used: EN 50581:2012 Servomex QMS Process 4415

Management Systems (Servomex Technical Centre, Crowborough, England)

Quality: ISO 9001:2015

Environmental: ISO 14001:2015

On behalf of the above-named company, I declare that the Equipment Type included within the scope of this declaration fulfils the essential requirements included in the above listed directives and is in conformity with the relevant Union harmonisation legislation.



Martin Cox, Global Operations Director

Date: July 14th 2021



Chris Barton, Global Head of Quality

14th July 2021

Note: This document must be retained by the user for the life of the product.



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SECTION 3 EUROPEAN HAZARDOUS AREA (ATEX) APPROVAL

Servomex 2700EU2

The Servomex 2700EU2 series has been ATEX certified by either Baseefa or Intertek with the following details:

Servomex 2700 series Control Unit:

Certification authority:	Intertek
ATEX coding:	⊕ II 3GD
Coding (gases):	Ex ic nA nC IIC T5 Gc
Coding (dusts):	Ex tc IIIB T75°C Dc IP65
Ambient temperature range:	Ta = -10°C to +55°C
Certificate No:	ITS10ATEX47005X

Servomex 2700 series Flow Alarm:

Certification authority:	Baseefa
ATEX coding:	⊕ II 3GD
Coding (gases):	Ex nA nC IIC T4 Gc
Coding (dusts):	Ex tc IIIC T75°C Dc IP66
Ambient temperature range:	Ta = -20°C to +65°C
Certificate No:	Baseefa11ATEX0263X

Servomex 2700 series Sensor Head:

Certification authority:	Baseefa
ATEX coding:	⊕ II 3G
Coding (gases):	Ex pz IIC T3/T2 Gc
Ambient temperature range:	Ta = -20°C to +70°C
Certificate No:	Baseefa12ATEX0073X

Note: The Servomex 2700 series Sensor Head is not suitable for use in hazardous areas / locations without the use of appropriate safety purge equipment.

A copy of the EC Declaration of Conformity and the Type Examination Certificates follow.

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1. TYPE EXAMINATION CERTIFICATE

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

3. Type Examination Certificate Number: **ITS10ATEX47005**

4. Equipment or Protective System: **Xendos 2700 Control Unit**

5. Manufacturer: **SERVOMEX GROUP LTD**

6. Address: **Millbrook Industrial Estate, Jarvis Brook, Crowborough TN6 3FB, UK**

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. Intertek Testing and Certification Limited, 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 Intertek Report Ref 09042962 dated May 2010

9. Compliance with the Essential Health and Safety Requirements has been assured by compliance with standards EN 60079-0:2009, EN 60079-11:2007, EN 60079-15:2005 and EN 61241-1:2004, except in respect of those requirements referred to 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 Type examination certificate relates only to the design and construction of the specified equipment or protective system in accordance to the directive 94/9/EC. Further requirements of the Directive apply to the manufacturing process and supply of this equipment or protective system. These are not covered by this certificate.

12. The marking of the equipment or protective system shall include the following:-



II 3GD

Ex ic nA nC IIC T5 Gc

Ex tc IIIC T75°C Dc Ta = -10°C to +55°C

A T Austin
Certification Officer
Date: 26 May 2010

Intertek Testing & Certification Limited
Intertek House, Cleeve Road, Leatherhead, Surrey, KT22 7SB
Tel: + 44 (0)1372 370900 Fax: +44 (0)1372 370977
<http://www.intertek.com>

Registered No 3272281 Registered Office: 25 Savile Row London W1X 1AA

This certificate may only be reproduced in its entirety and without any change, schedule included and is subject to Intertek Testing and Certification Conditions for Granting Certification.



13. **SCHEDULE**

14. **TYPE EXAMINATION CERTIFICATE NUMBER ITS10ATEX47005**

15. Description of Equipment

The Xendos 2700 Control Unit is intended to be used in conjunction with the Xendos 2700 Series Sensor Head, to monitor the oxygen and/or combustible content of flue gas. It comprises electronic circuits on printed circuit boards (PCBs), relays, a key pad, a liquid crystal display (LCD) and a mains transformer, all contained in an aluminium alloy enclosure which provides a degree of protection of at least IP65.

The apparatus is designed to be operated at 250V a.c. and a maximum power consumption of 250VA.

External electrical connections are made via tapped holes and the installation of the external connections must be carried out using the appropriate Ex e or Ex n metal cable glands. Unused entries must be blanked using the appropriate Ex e or Ex n metal blanking plugs. The cable gland and blanking plug must also maintain an ingress protection rating of IP65.

16. Report Number:

Intertek Report Ref 09042962 dated May 2010.

17. **CONDITIONS OF CERTIFICATION:**

(a). Special Conditions for safe use

None.

(b). Conditions For Use (Routine Tests)

Dielectric strength test carried out on primary and secondary windings of transformer with test voltage of 2000V a.c.

18. Essential Health and Safety Requirements (EHSR's)

The relevant EHSR's have been identified and assessed in Intertek Report Ref 09042962 dated May 2010.

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13. **SCHEDULE**

14. **TYPE EXAMINATION CERTIFICATE NUMBER ITS10ATEX47005**

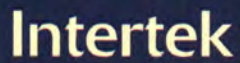
19. Drawings and Documents

Number	Issue	Date	Description
00100/850/0	0	14/04/08	Approval, Alternative Rating/Serial No Label
02710/874A/0	0	04/05/10	Approval ATEX Label
02710/875A/0	0	12/05/10	Approval ATEX Supplement
02710/880A/0 (sheets 2)	0	22/04/10	Approval Control Unit Assembly
02710/881/0	0	20/08/98	Approval – Control Unit Block Schematic
02710/883/1	1	20/08/98	Approval Transformer Assembly
02710/888A/0 (sheets 2)	0	22/04/10	Control Unit Enclosure IP Approval
02710/891/0	0	06/04/05	Approval Control Board Assembly
02710/891IN/0	0	22/04/10	Intertek Supplement to 02710/891
02710/891V/0	0	06/04/05	Approval Control Board, Layer C
02710/891W/0	0	06/04/05	Approval Control Board, Layer D
02710/891X/0 (sheets 8)	0	06/04/05	Approval Drawing Control Board – Circuit Diagram
02710/891Y/0	0	06/04/05	Approval Control Board, Layer A
02710/891Z/0	0	06/04/05	Approval Control Board, Layer B

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1. **SUPPLEMENTARY TYPE EXAMINATION CERTIFICATE**

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

3. Supplementary Type Examination Certificate Number: **ITS10ATEX47005X/1**

4. Equipment or Protective System: **Xendos 2700 Control Unit**

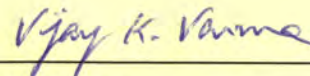
5. Manufacturer: **SERVOMEX GROUP LTD**

6. Address: **Millbrook Industrial Estate, Jarvis Brook
Crowborough TN6 3FB, UK**

7. This supplementary certificate extends Type Examination Certificate Number ITS10ATEX47005 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 variations specified in the Schedule attached to this certificate and the documents therein referred to.

Intertek Report Ref 10048448 dated August 2010

This Supplementary Certificate shall be held with the original Certificate



V K Varma
Certification Officer
26th August 2010

Intertek Testing & Certification Limited
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Schedule

SUPPLEMENTARY TYPE EXAMINATION CERTIFICATE NUMBER ITS10ATEX47005X/1

VARIATION ONE

Description of the Variation to the Equipment or Protective System.

To permit the following changes:

- 1 Modification to drawing 02710/875A/1 to include change of display window area coating details for gas and dust consideration.
- 2 Addition of Conditions for Safe Use in regards for equipment to be used in explosive dust atmospheres and addition of suffix "X" on the end of certificate number.
- 3 Modification to the drawing 02710/874A/1 to include new label materials details and addition of Note 5.

The above changes do not impair intrinsic safety.

Report No.

Intertek Report Ref 10048448 Issue 1 dated August 2010

SPECIAL CONDITIONS FOR SAFE USE

Precaution shall be taken to avoid the risk of electrostatic discharge or propagating brush discharges, see user instructions.

Essential Health and Safety Requirements

See original certificate

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Schedule

SUPPLEMENTARY TYPE EXAMINATION CERTIFICATE NUMBER ITS10ATEX47005X/1

DRAWINGS

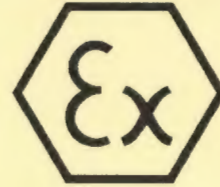
Number	Issue	Date	Description
02710/874A/1	1	02/0//10	Approval ATEX Label
02710/875A/1	1	25/08/10	Approval ATEX Supplement

This Certificate is for the exclusive use of Intertek's client and is provided pursuant to the agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this Certificate. Only the Client is authorized to permit copying or distribution of this Certificate and then only in its entirety. Any use of the Intertek name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek.

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Intertek



1. **SUPPLEMENTARY TYPE EXAMINATION CERTIFICATE**

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

3. Supplementary Type Examination Certificate Number: **ITS10ATEX47005X/2**

4. Equipment or Protective System: **2700 Series Control Unit**

5. Manufacturer: **SERVOMEX GROUP LTD**

6. Address: **Millbrook Industrial Estate, Jarvis Brook
Crowborough TN6 3FB, UK**

7. This supplementary certificate extends Type Examination Certificate Number ITS10ATEX47005X 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 variations specified in the Schedule attached to this certificate and the documents therein referred to.

Intertek Report Ref G100781212 dated December 2012

This Supplementary Certificate shall be held with the original Certificate

A handwritten signature in blue ink, appearing to read 'A. T. Austin', written over a horizontal line.

**A T Austin
Certification Officer
4th December 2012**

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Schedule

SUPPLEMENTARY TYPE EXAMINATION CERTIFICATE NUMBER ITS10ATEX47005X/2

VARIATION TWO

Description of the Variation to the Equipment or Protective System.

To permit the following changes:

1. Re-assessments of modified equipment incorporating new safety components that are used for the limitation of voltage and current into the Keypad switch and terminals TB2/11-14.
2. ATEX updates to existing product as per previous certificates ITS10ATEX47005X and using latest applicable standards EN 60079-0:2012, EN 60079-11:2012, EN 60079-15:2010, EN 60079-31:2009.
3. Modification to the drawing 02710/874A/2 to include new label details.
4. Modification to the drawing 02710/880A/2 to include the details of the external earth terminal.
5. Modification to the drawing 02710/888A/1 to include the specifications of the silicone gaskets used.

The above changes do not impair the protection concepts of the equipment.

Report No.

Intertek Report Ref G100781212 dated December 2012

SPECIAL CONDITIONS FOR SAFE USE

1. Precaution shall be taken to avoid the risk of electrostatic discharge or propagating brush discharges, see user instructions.
2. All unused entries shall be blanked using E x 'e' or Ex 'n' blanking plugs with minimum ratings of IP65.
3. Ex certified cable glands with minimum ratings of IP65 shall be used for external connections.

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Schedule

SUPPLEMENTARY TYPE EXAMINATION CERTIFICATE NUMBER ITS10ATEX47005X/2

Routine tests, if any:

1. A dielectric strength test shall be carried out on the transformer at 1500 V r.m.s for 60s. Alternatively, the test shall be carried out at 1800 V r.m.s, but shall be maintained for at least 100 ms.
2. A dielectric strength test shall be carried out on the isolated circuit (low voltage circuit) at 500V r.m.s for 60 seconds. Alternatively, the test shall be carried out at 600 V r.m.s, but shall be maintained for at least 100 ms.

Essential Health and Safety Requirements

See original certificate

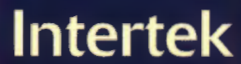
DRAWINGS

Title:	Drawing No.:	Rev. Level:	Date:
APPROVAL ATEX LABEL	02710/874A/2	2	27/07/12
APPROVAL ATEX SUPPLEMENT	02710/875A/1	1	25/08/10
APPROVAL CONTROL UNIT ASSEMBLY (2 Sheets)	02710/880A/2	2	28/11/12
CONTROL UNIT ENCLOSURE I P APPROVAL (2 Sheets)	02710/888A/1	1	24/07/12
APPROVAL CONTROL BOARD, ASSEMBLY	02710/856/0	0	30/10/12
APPROVAL, CIRCUIT DIAGRAM POWER SUPPLIES & RELAY CIRCUITS (8 SHEETS)	02710/856X/0	0	30/10/12
APPROVAL CONTROL BOARD LAYER A	02710/856Y/0	0	30/10/12
APPROVAL CONTROL BOARD LAYER B	02710/856Z/0	0	30/10/12
APPROVAL CONTROL BOARD LAYER C	02710/856V/0	0	30/10/12
APPROVAL CONTROL BOARD LAYER D	02710/856W/0	0	30/10/12
INTERTEK SUPPLEMENT TO 02710/856	02710/856IN/0	0	30/10/12
APPROVAL TRANSFORMER ASSEMBLY	02710/883A/1	1	13/8/12
APPROVAL – CONTROL UNIT BLOCK SCHEMATIC	02710/881/0	0	20/08/98
APPROVAL, ALTERNATIVE RATING/SERIAL No LABEL	00100/850/0	0	14/4/08

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1. **SUPPLEMENTARY TYPE EXAMINATION CERTIFICATE**

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

3. Supplementary Type Examination Certificate Number: **ITS10ATEX47005X/3**

4. Equipment or Protective System: **2700 Series Control Unit**

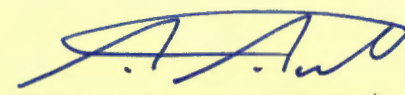
5. Manufacturer: **SERVOMEX GROUP LTD**

6. Address: **Millbrook Industrial Estate, Jarvis Brook
Crowborough TN6 3FB, UK**

7. This supplementary certificate extends Type Examination Certificate Number ITS10ATEX47005X and ITS10ATEX47005X/2 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 variations specified in the Schedule attached to this certificate and the documents therein referred to.

Intertek Report Ref G100781212 Issue 1 dated February 2013

This Supplementary Certificate shall be held with the original Certificate



A T Austin
Certification Officer
4th March 2013

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Schedule

SUPPLEMENTARY TYPE EXAMINATION CERTIFICATE NUMBER ITS10ATEX47005X/3

VARIATION THREE

Description of the Variation to the Equipment or Protective System.

To permit the following changes:

To replace drawing No.02710/875A/1 with drawing No.02710/873/0 in order to include details of protection of non-metallic Key pad against ultraviolet light.

The above changes do not impair the protection concepts of the equipment.

Report No.

Intertek Report Ref G100781212 Issue 1 dated February 2013

SPECIAL CONDITIONS FOR SAFE USE

See Certificate No. ITS10ATEX47005X/2

Routine tests, if any:

See Certificate No. ITS10ATEX47005X/2

Essential Health and Safety Requirements

See original certificate

DRAWINGS

Title:	Drawing No.:	Rev. Level:	Date:
APPROVAL KEYPAD/DISPLAY PANEL	02710/873/0	0	24/01/13

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1. **SUPPLEMENTARY TYPE EXAMINATION CERTIFICATE**
2. **Equipment or Protective System Intended for use in Potentially Explosive Atmospheres Directive 94/9/EC**
3. Supplementary Type Examination Certificate Number: **ITS10ATEX47005X/4**
4. Equipment or Protective System: **2700 Series Control Unit**
5. Manufacturer: **SERVOMEX GROUP LTD**
6. Address: **Millbrook Industrial Estate, Jarvis Brook
Crowborough TN6 3FB, UK**
7. This supplementary certificate extends Type Examination Certificate Number ITS10ATEX47005X, ITS10ATEX47005X/2 and ITS10ATEX47005X/3 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 variations specified in the Schedule attached to this certificate and the documents therein referred to.

Intertek Report Ref G101171061 dated May 2013

This Supplementary Certificate shall be held with the original Certificate

In accordance with EC NOTICE TO STAKEHOLDERS WITHDRAWAL OF THE UNITED KINGDOM AND EU RULES IN THE FIELD OF INDUSTRIAL PRODUCTS dated 13 March 2020.

This issued certificate - Certificate No: **ITS10ATEX47005X**

and supporting Technical Construction File underwent a legal transfer of new ownership by signed agreement between the named applicant on this certificate and the 3rd party bodies involved in the transfer from NB0359 to NB2575 on 28 December 2020

Name: **Fabrizio Massei**

Position: **ATEX Certification Officer**

Signature: 

Date: **28 December 2020**



A T Austin
Certification Officer
24th May 2013

Intertek Testing & Certification Limited
 Intertek House, Cleeve Road, Leatherhead, Surrey, KT22 7SB
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<http://www.intertek.com>
 Registered No 3272281 Registered Office: Academy Place, 1-9 Brook Street, Brentwood, Essex, CM14 5NQ

This Certificate is the property of Intertek Testing and Certification Ltd
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Schedule

SUPPLEMENTARY TYPE EXAMINATION CERTIFICATE NUMBER ITS10ATEX47005X/4

VARIATION FOUR

Description of the Variation to the Equipment or Protective System.

To permit the following changes:

1. Replacement of 9.5Kmin resistors RP11, RP48 and RP49 with 950R min resistors.
2. Correction of part number for Relays RL1-RL4 in drawing No. 02710/085IN/1.
3. Changes to appropriate documents to reflect the above changes.

The above changes do not impair the protection concepts of the equipment.

Report No.

Intertek Report Ref G101171061 dated May 2013

SPECIAL CONDITIONS FOR SAFE USE

See Certificate No. ITS10ATEX47005X/2

Routine tests, if any:

See Certificate No. ITS10ATEX47005X/2

Essential Health and Safety Requirements

See original certificate

DRAWINGS

Title:	Drawing No.:	Rev. Level:	Date:
INTERTEK SUPPLEMENT TO 02710/856	02710/856IN/1	1	25/04/13

This Certificate is for the exclusive use of Intertek's client and is provided pursuant to the agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this Certificate. Only the Client is authorized to permit copying or distribution of this Certificate and then only in its entirety. Any use of the Intertek name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek.

Intertek Testing & Certification Limited
Intertek House, Cleeve Road, Leatherhead, Surrey, KT22 7SB
Tel: + 44 (0) 1372 370900 Fax: +44 (0) 1372 370977
<http://www.Intertek.com>

Registered No 3272281 Registered Office: Academy Place, 1-9 Brook Street, Brentwood, Essex, CM14 5NQ

This Certificate is the property of Intertek Testing and Certification Ltd
and is subject to Intertek Testing and Certification Conditions for Granting Certification.

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1 **TYPE EXAMINATION CERTIFICATE**

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

3 Type Examination Certificate Number: **Baseefa11ATEX0263X**

4 Equipment: **2700 Series Flow Alarm**

5 Manufacturer: **Servomex Group Limited**

6 Address: **Jarvis Brook, Crowborough, East Sussex, TN6 3FB, UK**

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

8 Baseefa certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment of Category 3 intended for use in potentially explosive atmospheres given in Annex II to European Union Directive 94/9/EC of 23 March 1994.

The examination and test results are recorded in confidential Report No. **GB/BAS/ExTR11.0285/00**

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

IEC 60079-0:2011 EN 60079-15:2010 EN 60079-31:2008

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 is subject to special conditions for safe use specified in the schedule to this certificate.

11 This TYPE EXAMINATION CERTIFICATE relates only to the design of the specified equipment and not to specific items of equipment subsequently manufactured.

12 The marking of the equipment shall include the following :

Ⓔ II 3GD Ex nA nC IIC T4 Gc, Ex tc IIIC T75°C Dc IP66 (-20°C ≤ ta ≤ +65°C)

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

Baseefa Customer Reference No. **0965**

Project File No. **11/0425**

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

Re-issued 28 March 2012 to replace original



13

Schedule

14

Certificate Number Baseefa11ATEX0263X

15 Description of Equipment

The 02700 Series Flow Alarm is an optional addition to the Servotough FluegasExact Gas Analyser. The 02700 Series Flow Alarm is designed to monitor a signal received from a flow meter fitted to the 2700 series sensor head. The Flow Alarm actuates relay contacts if the flow rate of the monitored medium falls below a preset level or if there is a fault in the system.

The Flow Alarm is housed in a substantial IP 66 aluminium alloy enclosure with two M20 cable entries and an earth stud located at the bottom of the enclosure.

Input Parameters

Working Voltage:

$$U_n = 12.6V$$

Relay Contact Rating:

$$U_n = 253V$$

$$I_n = 3A$$

16 Report Number

GB/BAS/ExTR11.0285/00

17 Specific Conditions of Use

1. The equipment poses a potential electrostatic hazard and should be cleaned only with a damp cloth.
2. The equipment shall be installed so as to minimise the risk from propagating brush discharges.
3. The end user shall ensure the provision of a suitable sealing washer between the equipment enclosure and appropriate certified cable entry device.

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	Sheet	Issue	Date	Description
02720/872N/0	1	0	9/11/11	Flow Alarm ATEX / IECEx Supplement
02720/855X/0	1	0	3/11/11	Approval Drawing Flow Alarm Relay Board
02720/855/0	2	0	3/11/11	Approval Drawing Flow Alarm Relay Board – Assembly
02720/855Y/0	1	0	3/11/11	Approval drawing Flow Alarm Relay Board – Layer B
02720/855Z/0	1	0	3/11/11	Approval Drawing Flow Alarm Relay Board – Layer A

These drawings are common to, and held with, IECEx BAS 11.0128X



1 **TYPE EXAMINATION CERTIFICATE**

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

3 Type Examination Certificate Number: **Baseefa12ATEX0073X**

4 Equipment: **Type 2700 Combustion Analyser Sensor Head**

5 Manufacturer: **Servomex Group Limited**

6 Address: **Jarvis Brook, Crowborough, East Sussex, TN6 3FB**

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

8 Baseefa certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment of Category 3 intended for use in potentially explosive atmospheres given in Annex II to European Union Directive 94/9/EC of 23 March 1994.

The examination and test results are recorded in confidential Report No. **GB/BAS/ExTR12.0057/00**

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

**IEC 60079-0: 2011
EN 60079-2: 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 is subject to special conditions for safe use specified in the schedule to this certificate.

11 This TYPE EXAMINATION CERTIFICATE relates only to the design of the specified equipment and not to specific items of equipment subsequently manufactured.

12 The marking of the equipment shall include the following :

⊕ II 3G Ex pz IIC T3/T2 Gc (T_{amb} = -20°C to +70°C)

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

Baseefa Customer Reference No. **0965**

Project File No. **11/0375**

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

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Baseefa is a trading name of Baseefa Ltd

Registered in England No. 4305578. Registered address as above.


PP R S SINCLAIR M POWNEY
DIRECTOR
On behalf of
Baseefa



13

Schedule

14

Certificate Number Baseefa12ATEX0073X

15 Description of Equipment

The **Type 2700 Combustion Analyser Sensor Head** comprises a flange mounted twin chamber enclosure designed to be purged and pressurised by a remote control system.

The main chamber (roughly cylindrical) houses a gas sensor cell and connecting pipework, unions and flame arrestors to draw a sample of gas from the external flue probe by means of aspirated air or nitrogen through the filter block/flange assembly. Additional gas detector cells and/or flow sensing devices may also be optionally fitted to the sample flow pipework assembly.

The incoming sample gas and filter block are heated up to 250°C by means of an heater assembly (element and control thermostat) mounted to the filter block/flange assembly. In addition individual gas sensing elements within the enclosure may reach temperatures of up to 700°C. Flame arrestors are used to prevent any possible ignition within the sensor array from propagating back into the process environment.

A second (roughly rectangular) enclosure is mounted to the side of the main enclosure to house an electronics PCB complete with the user connections and control components. Up to three threaded cable entries are provided in the side of this enclosure.

The unit is designed to be purged and pressurised with air or nitrogen from a separate and suitably certified remote control system which is piped into the terminal enclosure, through the sensor enclosure and then piped out and vented via the same remote control unit. The control system may operate in either a leakage compensation mode or with a continuous flow of the protective gas.

16 Report Number

Baseefa Certification Report GB/BAS/ExTR12.0057/00

17 Specific Conditions of Use

1. The external surfaces of the purged and pressurised enclosures are allocated a T3 (200°C) temperature classification based on the maximum specified ambient of 70°C. The filter block (i.e. the internal face of the mounting flange) is allocated a T2 (300°C) temperature classification and is subject to heating by an internal heater element up to 260°C. The user is to ensure that the process/flue mountings do not pose a thermal ignition risk for any potential gas atmosphere.
2. The incoming cables and glands must be suitable for the conditions of use and must be fitted and connected so as to preserve the ingress protection (sealing) of the enclosure.
3. The enclosure is to be purged with air at a flow rate of not less than 5 l/min for a period of not less than 20 minutes when purged in leakage compensation mode, or 3 l/min for a period of not less than 30 minutes when operated in continuous flow mode.
4. The manufacturer shall subject each and every unit to a leakage test at 10kPa. The leakage shall not exceed 10 l/min.



5. The pressurisation and purging system attached to the enclosure must be suitably certified and comply with the following :-
 - a. Provide the minimum purge flow rate for the required time as specified above. Monitoring of the minimum flow rate shall be made on the outlet/vent side of the enclosure (not inlet).
 - b. Be connected within 100m of the input and output facilities of the enclosure, with no valves or restrictions in the outlet/vent line (other than those necessary for the function and control of the purging system and certified as integral parts thereof).
 - c. Provide automatic closing and spark arresting devices at the purge outlet aperture.
 - d. Provide low and high pressure monitoring and control, set to give pressures no less than 50Pa and no greater than 10kPa respectively within the enclosure.
 - e. The system must protect the enclosure from full line pressure in the event of pressure regulator failure (and any such failure should be self revealing). This may be achieved either by a redundant regulator, or a relief valve on the inlet side of the enclosure capable of venting the full flow.
6. For correct operation the on-site pressurising air supply must be capable of providing a minimum of 3 l/min for leakage compensation, or continuous flow.
7. The installer or user, as appropriate, is responsible for ensuring that this apparatus and in particular any ancillary apparatus, both inside and outside the apparatus, not included within the provisions of this certificate, is suitable for the conditions of use. Attention is drawn to the possible lack of alignment of apparatus grouping, temperature classification and other standard requirements between the standards to which the ancillary apparatus may be certified and the standards to which this certificate is issued.
8. The equipment (and associated pipework) may pose a potential electrostatic ignition hazard and should be suitably protected (i.e. earthed/screened and cleaned only with a damp cloth).
9. Once installed the correct functioning of the equipment and control system assembly shall be tested with regard to the following features :-
 - a. Ensure that the enclosure/system leakage is within permitted parameters, at the value specified on the labels, and in all cases less than 10 l/min at 10kPa, i.e. typically 4 l/min at 4kPa.
 - b. Ensure that the low pressure monitoring is effective, at the value specified on the label, and in all cases greater than 50Pa within the enclosure.
 - c. Ensure that the high pressure control is effective, at the value specified on the label, and in all cases less than 10kPa within the enclosure.

Repeat function testing is recommended periodically following maintenance. Additional function/maintenance tests may be required by the system manufacturer as detailed in the relevant installation/maintenance instructions.

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

Drawing No.	Sheet	Date	Description
02720/870/0	1 of 1	04.04.12	Certification Labels
02720/871/0	1 of 2	03.04.12	General Arrangement, Sensor Compartment
02720/871/0	2 of 2	03.04.12	General Arrangement, Terminal Compartment
02720/874/0	1 of 1	30.03.12	Block Diagram
02720/875/0	1 of 7	30.03.12	Assembly, Filter Block



Drawing No.	Sheet	Date	Description
02720/875/0	2 of 7	30.03.12	Assembly, Dual Sensor
02720/875/0	3 of 7	30.03.12	Assembly, O2 Sensor Only
02720/875/0	4 of 7	30.03.12	Assembly, COe Sensor Only
02720/875/0	5 of 7	30.03.12	Sensor Assembly, Flow Schematics
02720/875/0	6 of 7	30.03.12	Sensor Assembly, Flow Schematics
02720/875/0	7 of 7	30.03.12	Assembly, Flow Alarm
02720/876/0	1 of 1	30.03.12	Mounting Arrangements
02720/877/0	1 of 1	30.03.12	Flame Arrestors
02720/879/0	1 of 1	04.04.12	Purge System Schematic

These drawings are common to and are held with IECEX BAS 12.0073X

SECTION 4 INTERNATIONAL HAZARDOUS AREA (IECEX) APPROVAL

Servomex 2700EX2

The Servomex 2700EX2 series has been IECEx certified by either Baseefa or Intertek with the following details:

Servomex 2700 series Control Unit:

Certification authority:	Intertek
Coding (gases):	Ex ic nA nC IIC T5 Gc
Coding (dusts):	Ex tc IIIB T75°C Dc IP65
Ambient temperature range:	Ta = -10°C to +55°C
Certificate No:	IECEX ITS 12.0047X

Servomex 2700 series Flow Alarm:

Certification authority:	Baseefa
Coding (gases):	Ex nA nC IIC T4 Gc
Coding (dusts):	Ex tc IIIC T75°C Dc IP66
Ambient temperature range:	Ta = -20°C to +65°C
Certificate No:	IECEX BAS 11.0128X

Servomex 2700 series Sensor Head:

Certification authority:	Baseefa
Coding (gases):	Ex pz IIC T3/T2 Gc
Ambient temperature range:	Ta = -20°C to +70°C
Certificate No:	IECEX BAS 12.0045X

Note: The Servomex 2700 series Sensor Head is not suitable for use in hazardous areas / locations without the use of appropriate safety purge equipment.

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IECEX Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification Scheme for Explosive Atmospheres

for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.: **IECEX ITS 12.0047X** issue No.:2

Status: **Current**

Date of Issue: **2013-06-10**

Page 1 of 5

Certificate history:

Issue No. 2 (2013-6-10)
Issue No. 1 (2013-3-15)
Issue No. 0 (2012-12-3)

Applicant: **Servomex**
Millbrook Industrial Estate
Jarvis Brook
Crowborough TN6 3FB
United Kingdom
United Kingdom

Electrical Apparatus: **2700 Series Control Unit**
Optional accessory:

Type of Protection: **ic nA nC tc**

Marking: **IECEX ITS 12.0047X**
Ex ic nA nC IIC T5 Gc
Ex tc IIIC T75°C Dc
-10°C ≤ t_{amb} ≤ 55°C.

Approved for issue on behalf of the IECEx
Certification Body:

A.T Austin

Position:

Certification Officer

Signature:
(for printed version)

Date:

2013-06-10

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting the Official IECEx Website.

Certificate issued by:

Intertek Testing & Certification Limited
ITS House, Cleeve Road,
Leatherhead,
Surrey, KT22 7SB
United Kingdom



IECEX Certificate of Conformity

Certificate No.: IECEX ITS 12.0047X

Date of Issue: 2013-06-10

Issue No.: 2

Page 2 of 5

Manufacturer: **Servomex**
Millbrook Industrial Estate
Jarvis Brook
Crowborough TN6 3FB
United Kingdom
United Kingdom

Additional Manufacturing location
(s):

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements. This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended.

STANDARDS:

The electrical apparatus and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards:

IEC 60079-0 : 2011 Edition: 6.0	Explosive atmospheres - Part 0: General requirements
IEC 60079-11 : 2011 Edition: 6.0	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
IEC 60079-15 : 2010 Edition: 4	Explosive atmospheres - Part 15: Equipment protection by type of protection "n"
IEC 60079-31 : 2008 Edition: 1	Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure 't'

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

TEST & ASSESSMENT REPORTS:

A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in

Test Report:

GB/ITS/ExTR12.0048/00

GB/ITS/ExTR12.0048/01

GB/ITS/ExTR12.0048/02

Quality Assessment Report:

GB/ITS/QAR06.0004/02



IECEx Certificate of Conformity

Certificate No.: IECEx ITS 12.0047X

Date of Issue: 2013-06-10

Issue No.: 2

Page 3 of 5

Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

The 2700 Series Control Unit is intended to be used in conjunction with the 2700 Series Sensor Head, to monitor the oxygen and/or combustible content of flue gas. It comprises electronic circuits on printed circuit boards (PCBs), relays, a key pad, a liquid crystal display (LCD) and a mains transformer, all contained in an aluminium alloy enclosure which provides a degree of protection of at least IP65.

The apparatus is designed to be operated at 250V a.c. and a maximum power consumption of 250VA.

External electrical connections are made via tapped holes and the installation of the external connections must be carried out using the appropriate Ex e or Ex n metal cable glands.

Unused entries must be blanked using the appropriate Ex e or Ex n metal blanking plugs.

The cable gland and blanking plug must also maintain an ingress protection rating of IP65.

CONDITIONS OF CERTIFICATION: YES as shown below:

Conditions of Use

1. Precaution shall be taken to avoid the risk of electrostatic discharge or propagating brush discharges, see user instructions.
2. All unused entries shall be blanked using Ex 'e' or Ex 'n' blanking plugs with minimum ratings of IP65.
3. Ex certified cable glands with minimum ratings of IP65 shall be used for external connections.



IECEX Certificate of Conformity

Certificate No.: IECEX ITS 12.0047X

Date of Issue: 2013-06-10

Issue No.: 2

Page 4 of 5

DETAILS OF CERTIFICATE CHANGES (for issues 1 and above):

The modifications that are the subject of this report comprise the following:

1. Replacement of 9.5Kmin resistors RP11, RP48 and RP49 with 950R min resistors.
2. Correction of part number for Relays RL1-RL4 in drawing No. 02710/0851N/1.
3. Changes to appropriate documents to reflect the above changes.



IECEX Certificate of Conformity

Certificate No.: IECEx ITS 12.0047X

Date of Issue: 2013-06-10

Issue No.: 2

Page 5 of 5

Additional information:

Routine tests:

1. A dielectric strength test shall be carried out on the transformer at 1500 V r.m.s for 60s. Alternatively, the test shall be carried out at 1800 V r.m.s, but shall be maintained for at least 100 ms.
2. A dielectric strength test shall be carried out on the isolated circuit (low voltage circuit) at 500 V r.m.s for 60 seconds. Alternatively, the test shall be carried out at 600 V r.m.s, but shall be maintained for at least 100 ms.

Blank



IECEX Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification Scheme for Explosive Atmospheres

for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.: **IECEX BAS 11.0128X** issue No.: **0** Certificate history:

Status: **Current**

Date of Issue: **2012-01-24** Page 1 of 3

Applicant: **Servomex Group Limited**
Jarvis Brook,
Crowborough,
East Sussex,
TN6 3FB
United Kingdom

Electrical Apparatus: **2700 Series Flow Alarm**
Optional accessory:

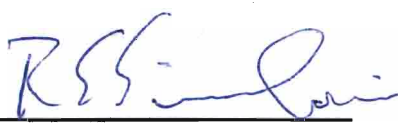
Type of Protection: **nA nC and tc**

Marking: **Ex nA nC IIC T4 Gc (-20°C ≤ ta ≤ +65°C)**
Ex tc IIIC T75°C Dc (-20°C ≤ ta ≤ +65°C)

Approved for issue on behalf of the IECEx
Certification Body:

Position:

Signature:
(for printed version)


25-1-12

Date:

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting the Official IECEx Website.

Certificate issued by:

Baseefa
Rockhead Business Park
Staden Lane
Buxton
Derbyshire
SK17 9RZ
United Kingdom





IECEX Certificate of Conformity

Certificate No.: IECEx BAS 11.0128X

Date of Issue: 2012-01-24

Issue No.: 0

Page 2 of 3

Manufacturer: **Servomex Group Limited**
Jarvis Brook,
Crowborough,
East Sussex,
TN6 3FB
United Kingdom

Manufacturing location(s):

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements. This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended.

STANDARDS:

The electrical apparatus and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards:

IEC 60079-0 : 2011 Edition: 6.0	Explosive atmospheres - Part 0: General requirements
IEC 60079-15 : 2010 Edition: 4	Explosive atmospheres - Part 15: Equipment protection by type of protection "n"
IEC 60079-31 : 2008 Edition: 1	Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure 't'

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

TEST & ASSESSMENT REPORTS:

A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in

Test Report:

GB/BAS/Ex.TR.11.0283/00

Quality Assessment Report:

GB/ITS/JAR06.004/01



IECEx Certificate of Conformity

Certificate No.: IECEx BAS 11.0128X

Date of Issue: 2012-01-24

Issue No.: 0

Page 3 of 3

Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

The 02700 Series Flow Alarm is an optional addition to the Servotough FluegasExact Gas Analyser. The 02700 Series Flow Alarm is designed to monitor a signal received from a flow meter fitted to the 2700 series sensor head. The Flow Alarm actuates relay contacts if the flow rate of the monitored medium falls below a preset level or if there is a fault in the system.

The Flow Alarm is housed in a substantial IP 66 aluminium alloy enclosure with two M20 cable entries and an earth stud located at the bottom of the enclosure.

Input Parameters

Working Voltage:

$U_n = 12.6V$

Relay Contact Rating:

$U_n = 253V$

$I_n = 3A$

CONDITIONS OF CERTIFICATION: YES as shown below:

1. The equipment poses a potential electrostatic hazard and should be cleaned only with a damp cloth.
2. The equipment shall be installed so as to minimise the risk from propagating brush discharges.
3. The end user shall ensure the provision of a suitable sealing washer between the equipment enclosure and appropriate certified cable entry device.



IECEX Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification Scheme for Explosive Atmospheres

for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.: **IECEX BAS 12.0045X** issue No.: **0** Certificate history: _____

Status: **Current**

Date of Issue: **2012-04-12** Page 1 of 4

Applicant: **Servomex Group Limited**
Jarvis Brook
Crowborough
East Sussex
TN6 3FB
United Kingdom

Electrical Apparatus: **Type 2700 Combustion Analyser Sensor Head**
Optional accessory:

Type of Protection: **Purged & Pressurised Enclosure**

Marking: **Ex pz IIC T3/T2 Gc (T_{amb} = -20°C to +70°C)**

Approved for issue on behalf of the IECEx
Certification Body:

PP R S Sinclair **M POWNEY**

Position: General Manager

Signature:
(for printed version)

M Powney

Date:

12/4/12

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting the [Official IECEx Website](http://www.iecex.com).

Certificate issued by:

Baseefa
Rockhead Business Park
Staden Lane
Buxton
Derbyshire
SK17 9RZ
United Kingdom





IECEX Certificate of Conformity

Certificate No.: IECEX BAS 12.0045X

Date of Issue: 2012-04-12

Issue No.: 0

Page 2 of 4

Manufacturer: **Servomex Group Limited**
Jarvis Brook
Crowborough
East Sussex
TN6 3FB
United Kingdom

Manufacturing location(s):

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements. This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended.

STANDARDS:

The electrical apparatus and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards:

IEC 60079-0 : 2011 Explosive atmospheres - Part 0: General requirements
Edition: 6.0

IEC 60079-2 : 2007-02 Explosive Atmospheres - Part 2 Equipment protection by pressurized enclosure "p"
Edition: 5

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

TEST & ASSESSMENT REPORTS:

A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in

Test Report:

[GB/BAS/ExTR12.0057/00](#)

Quality Assessment Report:

[GB/ITS/QAR06.0004/01](#)



IECEx Certificate of Conformity

Certificate No.: IECEx BAS 12.0045X

Date of Issue: 2012-04-12

Issue No.: 0

Page 3 of 4

Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

The **Type 2700 Combustion Analyser Sensor Head** comprises a flange mounted twin chamber enclosure designed to be purged and pressurised by a remote control system.

The main chamber (roughly cylindrical) houses a gas sensor cell and connecting pipework, unions and flame arrestors to draw a sample of gas from the external flue probe by means of aspirated air or nitrogen through the filter block/flange assembly. Additional gas detector cells and/or flow sensing devices may also be optionally fitted to the sample flow pipework assembly.

The incoming sample gas and filter block are heated up to 250°C by means of an heater assembly (element and control thermostat) mounted to the filter block/flange assembly. In addition individual gas sensing elements within the enclosure may reach temperatures of up to 700°C. Flame arrestors are used to prevent any possible ignition within the sensor array from propagating back into the process environment.

A second (roughly rectangular) enclosure is mounted to the side of the main enclosure to house an electronics PCB complete with the user connections and control components. Up to three threaded cable entries are provided in the side of this enclosure.

The unit is designed to be purged and pressurised with air or nitrogen from a separate and suitably certified remote control system which is piped into the terminal enclosure, through the sensor enclosure and then piped out and vented via the same remote control unit. The control system may operate in either a leakage compensation mode or with a continuous flow of the protective gas.

CONDITIONS OF CERTIFICATION: YES as shown below:

1. The external surfaces of the purged and pressurised enclosures are allocated a T3 (200°C) temperature classification based on the maximum specified ambient of 70°C. The filter block (i.e. the internal face of the mounting flange) is allocated a T2 (300°C) temperature classification and is subject to heating by an internal heater element up to 260°C. The user is to ensure that the process/flue mountings do not pose a thermal ignition risk for any potential gas atmosphere.
2. The incoming cables and glands must be suitable for the conditions of use and must be fitted and connected so as to preserve the ingress protection (sealing) of the enclosure.
3. The enclosure is to be purged with air at a flow rate of not less than 5 l/min for a period of not less than 20 minutes when purged in leakage compensation mode, or 3 l/min for a period of not less than 30 minutes when operated in continuous flow mode.
4. The manufacturer shall subject each and every unit to a leakage test at 10kPa. The leakage shall not exceed 10 l/min.

Continued on Page 4.



IECEx Certificate of Conformity

Certificate No.: IECEx BAS 12.0045X

Date of Issue: 2012-04-12

Issue No.: 0

Page 4 of 4

Additional information:

Conditions of Certification continued

5. The pressurisation and purging system attached to the enclosure must be suitably certified and comply with the following :-

- a. Provide the minimum purge flow rate for the required time as specified above. Monitoring of the minimum flow rate shall be made on the outlet/vent side of the enclosure (not inlet).
- b. Be connected within 100m of the input and output facilities of the enclosure, with no valves or restrictions in the outlet/vent line (other than those necessary for the function and control of the purging system and certified as integral parts thereof).
- c. Provide automatic closing and spark arresting devices at the purge outlet aperture.
- d. Provide low and high pressure monitoring and control, set to give pressures no less than 50Pa and no greater than 10kPa respectively within the enclosure.
- e. The system must protect the enclosure from full line pressure in the event of pressure regulator failure (and any such failure should be self revealing). This may be achieved either by a redundant regulator, or a relief valve on the inlet side of the enclosure capable of venting the full flow.

6. For correct operation the on-site pressurising air supply must be capable of providing a minimum of 3 l/min for leakage compensation, or continuous flow.

7. The installer or user, as appropriate, is responsible for ensuring that this apparatus and in particular any ancillary apparatus, both inside and outside the apparatus, not included within the provisions of this certificate, is suitable for the conditions of use. Attention is drawn to the possible lack of alignment of apparatus grouping, temperature classification and other standard requirements between the standards to which the ancillary apparatus may be certified and the standards to which this certificate is issued.

8. The equipment (and associated pipework) may pose a potential electrostatic ignition hazard and should be suitably protected (i.e. earthed/screened and cleaned only with a damp cloth).

9. Once installed the correct functioning of the equipment and control system assembly shall be tested with regard to the following features :-

- a. Ensure that the enclosure/system leakage is within permitted parameters, at the value specified on the labels, and in all cases less than 10 l/min at 10kPa, i.e. typically 4 l/min at 4kPa.
- b. Ensure that the low pressure monitoring is effective, at the value specified on the label, and in all cases greater than 50Pa within the enclosure.
- c. Ensure that the high pressure control is effective, at the value specified on the label, and in all cases less than 10kPa within the enclosure.

Repeat function testing is recommended periodically following maintenance. Additional function/maintenance tests may be required by the system manufacturer as detailed in the relevant installation/maintenance instructions.

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SECTION 5 NORTH AMERICAN APPROVAL (CSA)

North American General Purpose (GP) Certificate of Compliance

CSA Certificate No: 2604730

2700 Series Glue Gas Analyser Control Unit, Model 2710

Mains supply: 110-120/220-240Vac, 50/60Hz, 250VA

Ambient temperature range -10°C to +55°C

IP65

2700 Series Sensor Head Assembly, Model 2720

Mains supply: 110-120/220-240Vac, 50/60Hz, 600VA

Ambient temperature range -20°C to +70°C

IP66

2700 Series Flow Alarm relay Box, Model 2720

Sensor head supply: 12Vdc

Ambient temperature range -10°C to +50°C

IP66

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Certificate of Compliance

Certificate: 2604730

Master Contract: 153364

Project: 2604730

Date Issued: July 2, 2013

Issued to: Servomex Group Ltd.

Millbrook Industrial Estate
Jarvis Brook
Crowborough, East Sussex TN6 3FB
United Kingdom
Attention: Nigel Pickett

The products listed below are eligible to bear the CSA Mark shown with adjacent indicators 'C' and 'US' for Canada and US or with adjacent indicator 'US' for US only or without either indicator for Canada only.



Dimcho Genov

Issued by: Dimcho Genov

PRODUCTS

CLASS 2252 86 - PROCESS CONTROL EQUIPMENT - Certified to US Standards

CLASS 2252 06 - PROCESS CONTROL EQUIPMENT

2700 Series Flue Gas Analyzer Control Unit, Model 2710; supply 100-120/220-240Vac, 50/60Hz, 250VA; relay contact rating 250V ac, 3A max; Max Ambient 55° C; Enclosure Type 4X, IP65.

2700 Series Sensor Head Assembly, Model 2720; supply 100-120/220-240Vac, 50/60Hz, 600VA; Max Ambient 70° C; IP66

2700 Series Flow Alarm Relay Box, Model 2720; Sensor head powered 12Vdc; relay contact rating 240V ac, 3A max; Max Ambient 50° C; IP66

Notes:

1. The above model is permanently connected, Equipment Class I, Pollution Degree 2, Installation Category II.
2. Mode of operation: Continuous
3. Environmental Conditions: Extended – Control unit -10°C to +55°C; Sensor head -20°C to +70°C; Flow alarm relay box -10°C to +50°C



Certificate: 2604730

Master Contract: 153364

Project: 2604730

Date Issued: July 2, 2013

APPLICABLE REQUIREMENTS

CAN/CSA-C22.2 No. 61010-1-12 - Safety Requirements for Electrical Equipment for Measurement, Control, and Laboratory Use, Part 1: General Requirements

UL Std. No. 61010-1 (3rd Edition) - Safety Requirements for Electrical Equipment for Measurement, Control, and Laboratory Use - Part 1: General Requirements



Supplement to Certificate of Compliance

Certificate: 2604730

Master Contract: 153364

The products listed, including the latest revision described below, are eligible to be marked in accordance with the referenced Certificate.

Product Certification History

Project	Date	Description
2604730	Jul 2, 2013	New certification of 2700 series flue gas analyzer, consisting of control unit, sensor head assembly and flow alarm relay box.

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North American Hazardous Area Certificate of Compliance

Servomex 2700NA2

The Servomex 2700NA2 series has been Certified by CSA with the following details:

CSA Certificate No. 2578918

2700 Series Flue Gas Analyser Control Unit, Model 2710 has been approved to:

Class I, Div. 2, Groups ABCD; Class II, Div. 2, Groups FG; Class III, Div. 1; T5
Ex nA nC IIC T5 Gc;
Class I, Zone 2, AEx nA nC IIC T5 Gc;
Zone 22 AEx tc IIIB T75°C Dc ;
IP65
Ambient temperature range -10°C to +55°C

2700 Series Flow Alarm relay Box, Model 2720 has been approved to:

Class I, Div. 2, Groups ABCD; Class II, Div. 2, Groups FG; Class III, Div. 1; T4
Ex nA nC IIC T4 Gc;
Class I, Zone 2, AEx nA nC IIC T4 Gc;
Zone 22 AEx tc IIIB T75°C Dc ;
IP66
Ambient temperature range -20°C to +65°C

2700 Series Sensor Head, Model 2720 has been approved to:

Class I, Div. 2, Groups ABCD; T3/T2
IP66
Ambient temperature range -20°C to +70°C

2700 Series Purge Controller, Model 2760 has been approved to:

Class I, Div. 2, Groups ABCD; T6

Ambient temperature range -20°C to +55°C

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Certificate of Compliance

Certificate: 2578918

Master Contract: 153364

Project: 2707138

Date Issued: December 29, 2014

Issued to: Servomex Group Ltd.

Millbrook Industrial Estate
Jarvis Brook
Crowborough, East Sussex TN6 3FB
United Kingdom
Attention: C.K. Pang

The products listed below are eligible to bear the CSA Mark shown with adjacent indicators 'C' and 'US' for Canada and US or with adjacent indicator 'US' for US only or without either indicator for Canada only.



Issued by: Sarita Singh

PRODUCTS

CLASS 2258 02 - PROCESS CONTROL EQUIPMENT - For Hazardous Locations

CLASS 2258 82 - PROCESS CONTROL EQUIPMENT - For Hazardous Locations -
Certified to US Standards

SERVOTOUGH FluegasExact Combustion Gas Analyser system comprises of the following components:

02760 PZ Purge Control System, 02720 Sensor Head, 02720 Flow Alarm Relay Box, and 02710 Control Unit per installation drawing 02700/879 and per listings below.

Class I, Div. 2, Groups A, B, C & D; Class II, Div. 2, Groups F & G; Class III, Div. 1;

Ex nA nC IIC T5 Gc;

Class I, Zone 2, AEx nA nC IIC T5 Gc; Zone 22 AEx tc IIIB T75°C Dc



Certificate: 2578918

Master Contract: 153364

Project: 2707138

Date Issued: December 29, 2014

2700 Series Flue Gas Analyzer Control Unit, Model 2710; supply 100-120/220-240Vac, 50/60Hz, 250VA; relay contact rating 250V ac, 3A max; Temperature Code T5; Ambient Temperature -10° C to +55° C; IP65

Class I, Div. 2, Groups A, B, C & D; Class II, Div. 2, Groups F & G; Class III, Div. 1;

Ex nA nC IIC T4 Gc;

Class I, Zone 2, AEx nA nC IIC T4 Gc; Zone 22 AEx tc IIIB T75° C Dc

2700 Series Flow Alarm Relay Box, Model 2720; Sensor head powered 12Vdc $\pm 5\%$, 2W; relay contact rating 240V ac, 3A max; Temperature Code T4; Ambient Temperature -20° C to +65° C; IP66

Class I, Div. 2, Groups A, B, C & D

2700 Combustion Gas Analyzer used to measure excess oxygen and carbon monoxide contents only, consisting of: Sensor Head, Model 2720; supply 100-120/220-240Vac, 50/60Hz, Type Z purged; and purged by Model 02760 Purge Control System with alarm switch contacts rated 120Vac, 0.5A and 30Vdc, 1A; Ambient Temperature -20° C to +70° C; IP66; T3/T2 (refer to note 9)

Note:

1. The incoming cables and glands must be suitable for the conditions of use and must be fitted and connected so as to preserve the ingress protection (sealing) of the enclosure.
2. The safety of the equipment relies on the provision of proper purging and pressurizing when used in hazardous locations. It must not be put into use without "special permission" from the inspection authority having jurisdiction.
3. Power must not be restored after enclosure has been opened until enclosure has been purged for 30 minutes at a flow rate of 3 slpm minimum.
4. The Sensor Head enclosure must not be opened unless the area atmosphere is known to be below the ignitable concentration of combustible materials or unless all equipment within has been de-energized for 50 minutes while the purge system remains on.
5. The 02760 Purge Control System must be connected within 100m of the input and output facilities of the 2700 Series Sensor Head enclosure, with no valves or restrictions in the pipework between the Purge Control System Model 02760 and the Sensor Head Model 2720. Maximum loop length 200m.



Certificate: 2578918

Master Contract: 153364

Project: 2707138

Date Issued: December 29, 2014

6. For correct operation the on-site pressurizing air supply must be capable of providing a minimum of 10 l/min at a minimum pressure of 4 Bar.

7. If the pipework installation is to be pressure tested with the sensor head attached then the pressure applied should be 100 millibar maximum and the leakage less than 10 l/min.

8. Once installed the correct functioning of the equipment and control system assembly shall be tested with regard to the following features:

- a. Ensure that the enclosure/system leakage is less than 10 l/min at 100 millibar.
- b. Ensure that the low pressure monitoring is greater than 0.5 millibar within the enclosure.
- c. Ensure that the high pressure control is less than 100 millibar within the enclosure.

Refer to 02760 Purge Control System manual for details.

Repeat function testing is recommended periodically following maintenance.

9. The temperature classification of the Sensor Head Model 2720 is defined as follows; refer to installation drawing 02700/879 in Appendix E of the manual, for typical mounting arrangements:

- a. T3 when the temperature of the process flange to which the Sensor Head is attached does not exceed 170°C (338°F), in-situ.
- b. T2 when the temperature of the process flange to which the Sensor Head is attached does not exceed 250°C (482°F), in-situ.
- c. T2 when the Sensor Head is used in an extractive system.

It is the responsibility of the end user to confirm the flange/process temperature in order to determine the accurate Temperature code.

10. The equipment may pose an electrostatic hazard and should only be cleaned with a damp cloth.

11. Do not open the enclosures if an explosive atmosphere is present.

12. This system is only for flue gas monitoring where the sample gas is drawn by an aspirator mechanism in the sample return path and the sample gas will be at negative pressure within the Sensor Head during operation.

Class I, Div. 2, Groups A, B, C & D

2700 Series Purge Control System, Model 2760; ambient temperature -20 °C to +55 °C; alarm rated 120Vac, 0.5A and 30Vdc, 1A



Certificate: 2578918

Master Contract: 153364

Project: 2707138

Date Issued: December 29, 2014

Notes:

1. This product is only designed to be used with the Servomex 2700 Combustion Gas Analyzer Sensor Head, Model 2720 and is not a standalone purge system.
2. Final installation and alarm location must meet CEC, NEC and NFPA 496 requirements.

APPLICABLE REQUIREMENTS

CAN/CSA Standard C22.2 No. 0-10 - General Requirements - Canadian Electrical Code, Part II

CSA Standard C22.2 No. 213-M1987 - Non-incendive Electrical Equipment for Use in Class I, Division 2 Hazardous Locations

CSA Standard C22.2 No. 25-M1966 - Enclosures for Use in Class II Groups E,F, and G Hazardous Locations

CAN/CSA-C22.2 No. 60079-0:11 - Electrical apparatus for explosive gas atmospheres - Part 0: General requirements

CAN/CSA-C22.2 No. 60079-15:12 - Electrical apparatus for explosive gas atmospheres - Part 15: Type of protection "n"

ANSI/ISA-12.12.01-2010 - Non-incendive Electrical Equipment for Use in Class I and II, Division 2 and Class III, Division 1 and 2 Hazardous (Classified) Locations

ANSI/ISA-60079-0 (12.00.01)-2009 - Electrical apparatus for explosive gas atmospheres - Part 0: General requirements

ANSI/ISA-60079-15 (12.12.02)-2012 - Electrical apparatus for explosive gas atmospheres - Part 15: Type of protection "n"

ANSI/ISA-60079-31 (12.10.03)-2009 - Explosive atmospheres — Part 31: Equipment dust ignition protection by enclosure "t"

NFPA 496 2013 - Standard for Purged and Pressurized Enclosures for Electrical Equipment

CSA Standard C22.2 No. 14-13 - Industrial Control Equipment

UL 508, 17th Edition - Industrial Control Equipment



Supplement to Certificate of Compliance

Certificate: 2578918

Master Contract: 153364

The products listed, including the latest revision described below, are eligible to be marked in accordance with the referenced Certificate.

Product Certification History

Project	Date	Description
2707138	Dec 29, 2014	Update to report 2578918 for inclusion of 02720 Series Sensor Head and 02760 Purge Controller.
2578918	Nov 20, 2013	Original Certification of Servotough 2700 Series Gas Analyzer Control Unit, Model 2710 and 2700 Series Flow Alarm Relay Box, Model 2720 based on Zone Data and existing CSA reports.

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