SERVOMEX
ANALYZERS
HIGH-PERFORMANCE GAS ANALYSIS

SERVOTOUGH Oxy Series
Certification Supplement Manual

Part Number: **01910008B**
Revision: **13**
Language: **UK English**

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IMPORTANT INFORMATION

Continued safe and reliable operation of this equipment is conditional on all installation, operation and maintenance procedures being carried out in accordance with the appropriate manuals, by personnel having appropriate qualifications, experience and training.

Failure to observe the requirements of the manual may result in the user being held responsible for the consequences and may invalidate any warranty.

Servomex will accept no liability for unauthorised modifications to Servomex supplied equipment.

Servomex has paid particular attention to Health and Safety throughout this manual. Where special precautions need to be taken due to the nature of the equipment or product, an appropriate safety icon and warning message is shown. Special attention should be made to the Safety Chapter if available, where all such messages are summarised.

In line with our continuous policy of research and development, we reserve the right to amend models and specifications without prior notice.

This handbook is accurate at the date of printing, but will be superseded and should be disregarded if specifications or appearance are changed.

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Table of Contents

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1. Introduction

The SERVOTOUGH Oxy Series has been approved by various authorities for installation in hazardous areas. The certification offered with a specific analyser configuration will depend upon specification and country of delivery. See the certification labels attached to the analyser for exact approval details. The following information summarises the approvals that have been obtained.

If the analyser is installed in a hazardous area then the 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.

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2. EU Declaration of Conformity

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SERVOMEX
a spectris company

Servomex Group Limited
UK Technical and Service Centre
Jarvis Brook, Crowborough
East Sussex, TN6 3FB
T: +44 (0) 1892 652181
servomex.com

EU DECLARATION OF CONFORMITY

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

Equipment Type:	**SERVOTOUGH Oxy (01910B1) Gas Analyser**	
Directive	**ATEX 2014/34/EU**	
EU Type Examination Certificate:	Baseefa09ATEX0080X	SGS Fimko 0598
QA Notification & Notified Body:	ITS09ATEXQ6313	Intertek 2575
Harmonised Standards used:	EN IEC 60079-0:2018 EN 60079-1:2014 EN 60079-11:2012 EN 60079-31:2014	
Other Standards used:	EN 61010-1:2010	Servomex Reference: 01910A028

Directive	**Electromagnetic Compatibility (EMC) 2014/30/EU**	
Standards & Specifications used:	EN 61326-1: 2013	
		Servomex Reference: 01910A027
Directive	**Restriction of Hazardous Substances (RoHS 2) 2011/65/EU**	
Standards & Specifications used:	EN IEC 63000:2018	
		Servomex Reference: 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.

Tyrone White

Tyrone White, Global Operations Director

C Barton

Chris Barton, Global Head of Quality

Date: 06 December 2022

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

3. European (ATEX) Certification

The SERVOTOUGH Oxy Series is ATEX certified as intrinsically safe, flameproof and dust ignition protected with the following marking options:

Gas Only

 II 2G

Ex db ia IIC T4 Gb

-10°C ≤ Ta ≤ +60°C

Dust Only

 II 2D

Ex tb IIIC T90°C Db

-10°C ≤ Ta ≤ +60°C

Gas and Dust

 II 2GD

Ex db ia IIC T4 Gb Ex tb IIIC T90°C Db

-10°C ≤ Ta ≤ +60°C

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EU - TYPE EXAMINATION CERTIFICATE

Equipment or Protective System Intended for use in Potentially Explosive Atmospheres
Directive 2014/34/EU

3	EU - Type Examination Certificate Number:	**Baseefa09ATEX0080X – Issue 7**
4	Product:	**Servotough**
5	Manufacturer:	**Servomex Group Limited**
6	Address:	**Jarvis Brook, Crowborough, East Sussex, TN6 3FB, United Kingdom**

7 This re-issued certificate extends EU Type Examination Certificate No. Baseefa09ATEX0080X to apply to product designed and constructed in accordance with the specification set out in the Schedule of the said certificate but having any variations specified in the Schedule attached to this certificate and the documents therein referred to.

8 SGS Fimko Oy, Notified Body number 0598, in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres given in Annex II to the Directive.

8.1 The original certificate was issued by SGS Baseefa Ltd (UK Notified Body 1180). It, and any supplements previously issued by SGS Baseefa Ltd have been transferred to the supervision of SGS Fimko Oy (EU Notified Body 0598). The original certificate number is retained.

The examination and test results are recorded in confidential Report No. **GB/BAS/ExTR22.0101/00**

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

EN IEC 60079-0:2018 EN 60079-1:2014 EN 60079-11:2012 EN 60079-31:2014

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 product is subject to the Specific Conditions of Use specified in the schedule to this certificate.

11 This EU - TYPE EXAMINATION CERTIFICATE relates only to the design and construction of the specified product. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by this certificate.

12 The marking of the product shall include the following :

See schedule

SGS Fimko Oy Customer Reference No. **0965** Project File No. **21/0294**

This document is issued by the Company subject to their General Conditions for Certification Services accessible at http://www.sgs.com/en/Terms-and-Conditions.aspx . Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained herein reflects the Company's findings at the time of their intervention only and within the limits of Client's instructions, if any. It does not necessarily indicate that the equipment may be used in particular industries or circumstances. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, schedule included, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

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web site www.sgs.fi
Business ID 0978538-5 Member of the SGS Group (SGA SA)

Mikko Välimäki
Authorised Signatory for SGS Fimko Oy

13 # Schedule

14 ## Certificate Number Baseefa09ATEX0080X – Issue 7

15 Description of Product

The SERVOTOUGH digital analyser is designed for measuring gas concentrations using different transducers. Model "SERVOTOUGH Oxy" uses a paramagnetic transducer for measuring oxygen and model "SERVOTOUGH Spectra" uses an infra-red transducer for measuring other gases. The analyser is mains powered.

The analyser comprises an enclosure with two compartments, one of which is Ex db and contains a user interface board, power supply board and barrier board. The second compartment contains the intrinsically safe circuits comprising; distribution board, CPU board, display and keypad board, Compartment Heater, component certified gas sensor and optional Gas Sample Heater and/or Flow & Pressure Board. The circuits within the two compartments are connected together by means of a cable that leaves one compartment and goes outside the equipment then enters the second compartment. There is no direct connection between the two compartments.

Electrical connections are made to the analyser in the Ex db compartment on the user interface board by means of screw terminals.

The standards used in support of this certificate, and listed on the front sheet, are restricted in scope to atmospheres at normal atmospheric pressure and normal oxygen concentration. In considering the intended use of this equipment, additional safety factors have been applied to parts of the intrinsically safe circuit to allow for samples being analysed at up to 18 psia (1.24 bar).

User Terminals in Ex d compartment

$U_m = 253V_{rms}$

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

II 2GD Ex db ia IIC T4 Gb (-10°C ≤ Ta ≤ +50°C) Ex tb IIIC T90°C Db (-10°C ≤ Ta ≤ +50°C)

or

II 2GD Ex db ia IIC T4 Gb (-10°C ≤ Ta ≤ +60°C) Ex tb IIIC T90°C Db (-10°C ≤ Ta ≤ +60°C)

16 Report Number

See certificate history

17 Specific Conditions of Use

1. The gas ports may be connected to a pressurised gas source with normal oxygen content up to a maximum pressure of 1.241bar absolute.
2. The unit is not to be installed in a high velocity dust laden atmosphere.
3. The unit must be mounted so that dust may only form a layer on the top surface

18 Essential Health and Safety Requirements

In addition to the Essential Health and Safety Requirements (EHSRs) covered by the standards listed at item 9, the following are considered relevant to this product:

Clause	Subject
1.2.7	LVD type requirements
1.2.8	Overloading of equipment (protection relays, etc.)
1.4.1	External effects
1.4.2	Aggressive substances, etc.

19 Drawings and Documents

New drawings submitted for this issue of certificate:

Number	Sheet	Issue	Date	Description
01910/888/4	1 to 2	4	17/06/2022	APPROVAL ATEX IECEx LABEL

This drawing is held with IECEx BAS 09.0029X Issue 7.

Current drawings which remain unaffected by this issue:

Number	Sheet	Issue	Date	Description
01910/857/2	1 to 2	2	10/01/10	Approval Drawing Pressure/Flow ADC Board – Assembly
01910/857V/2	1 of 1	2	10/01/10	Approval Drawing Pressure/Flow ADC Board – Layer C
01910/857W/2	1 of 1	2	10/01/10	Approval Drawing Pressure/Flow ADC Board – Layer B
01910/857X/2	1 to 2	2	10/02/10	Approval: Pressure/Flow ADC Board, Circuit Diagram
01910/857Y/2	1 of 1	2	10/01/10	Approval Drawing Pressure/Flow ADC Board – Layer D
01910/857Z/2	1 of 1	2	10/01/10	Approval Drawing Pressure/Flow ADC Board – Layer A
01910/859/2	1 to 2	2	15/06/10	Approval Drawing Sample Heater Board - Assembly
01910/859W/1	1 of 1	1	09/03/10	Approval Drawing Sample Heater Board – Layer B
01910/859X/0	1 of 1	0	07/04/09	Approval, Sample Heater Circuit Diagram
01910/859Y/1	1 of 1	1	09/03/10	Approval Drawing Sample Heater Board – Layer C
01910/859Z/1	1 of 1	1	09/03/10	Approval Drawing Sample Heater Board – Layer A
01910/862/1	1 & 2 of 3	1	24/10/13	Approval Drawing Power Supply Board – Assembly
01910/862/1	3 of 3	1	24/10/13	Approval Drawing Insulating Separator / Utility Board
01910/862X/1	1 of 1	1	24/10/13	Approval Drawing Power Supply Board, Circuit
01910/862Y/1	1 of 1	1	24/10/13	Approval Drawing Power Supply Board – Layer B
01910/862Z/1	1 of 1	1	24/10/13	Approval Drawing Power Supply Board – Layer A
01910/863/0	1 to 2	0	18/09/08	Approval Drawing, Barrier Board - Assembly
01910/863V/0	1 of 1	0	18/09/08	Approval, Barrier Board - Layer C
01910/863W/0	1 of 1	0	18/09/08	Approval, Barrier Board - Layer B
01910/863X/2	1 to 2	2	11/11/10	Approval, Barrier Board Circuit Diagram
01910/863Y/0	1 of 1	0	18/09/08	Approval Drawing, Barrier Board - Layer D
01910/863Z/0	1 of 1	0	18/09/08	Approval Drawing, Barrier Board - Layer A
01910/864/3	1 of 1	3	10/02/10	Approval Drawing Distribution Board – Assembly
01910/864X/3	1 of 1	3	10/02/10	Approval: Distribution Board, Circuit Diagram
01910/864Y/3	1 of 1	3	10/02/10	Approval Drawing Distribution Board – Layer B
01910/864Z/3	1 of 1	3	10/02/10	Approval Drawing Distribution Board – Layer A
01910/865/1	1 of 1	1	07/04/09	Approval Drawing Heater Board Assembly
01910/865V/1	1 of 1	1	07/04/09	Approval Drawing Heater Board – Layer C
01910/865W/1	1 of 1	1	07/04/09	Approval Drawing Heater Board – Layer B
01910/865X/2	1 of 1	2	07/04/09	Approval, Heater Board Circuit Diagram
01910/865Y/1	1 of 1	1	07/04/09	Approval Drawing Heater Board – Layer D
01910/865Z/1	1 of 1	1	07/04/09	Approval Drawing Heater Board – Layer A

Number	Sheet	Issue	Date	Description
01910/871/4	1 of 1	4	10/03/16	Approval Enclosure Machining
01910/872/0	1 of 1	0	08/05/06	Approval, Membrane Keypad
01910/873/3	1 to 3	3	13/12/16	Enclosure Assy IP Approval
01910/874/1	1 of 1	1	18/09/08	General Assembly – Flameproof Compartment
01910/875/3	1 to 4	3	13/12/16	Sample Compartment Assembly
01910/877/2	1 of 1	2	10/03/16	Approval Flame Proof Lid Machining
01910/878/3	1 of 1	3	08/12/09	Mains Transformer
01910/879/0	1 of 1	0	10/05/06	Cover Plate
01910/880/3	1 of 1	3	19/11/09	Interconnect Cable Assembly
01910/881/1	1 of 1	1	18/09/08	1910 Block Diagram IS Version
01910/882/0	1 of 1	0	03/09/07	Alternative Fuse Encapsulation
01910/884/0	1 of 1	0	08/05/06	Core Instrument Assembly
01910/885/4	1 of 1	4	18/09/08	Cable Assemblies
01910/886/0	1 of 1	0	08/05/06	Transducer Mounting Bracket Type 1
01910/887/1	1 of 1	1	19/09/08	Transducer Mounting Bracket Type 2
01910/888/3	1 to 2	3	13/12/16	Approval ATEX IECEx Label
01910/889/1	1 of 1	1	18/09/08	Heatsink
01910/890/1	1 of 1	1	18/02/10	Approval Bulkhead Block
01910/892/0	1 of 1	0	18/09/08	Approval Manifold Assembly
01910/893/1	1 of 1	1	09/03/10	Sample Port Approval
01910/894/3	1 of 1	3	09/03/10	Approval Bulkhead Assm
05000/851/0	1 of 1	0	04/05/06	Approval Drawing, Microcontroller Board - Assembly
05000/851V/0	1 of 1	0	04/05/06	Approval Drawing, Microcontroller Board - Layer C
05000/851W/0	1 of 1	0	04/05/06	Approval Drawing, Microcontroller Board - Layer B
05000/851X/0	1 of 1	0	04/05/06	Approval 5000 Series, Microcontroller Module
05000/851Y/0	1 of 1	0	04/05/06	Approval Drawing, Microcontroller Board - Layer D
05000/851Z/0	1 of 1	0	04/05/06	Approval Drawing, Microcontroller Board - Layer A

All existing drawings are held with IECEx BAS 09.0029X Issue 7, and are common to BAS21UKEX0479X.

20 Certificate History

Certificate No.	Date	Comments
Baseefa09ATEX0080X	2 June 2009	The release of the prime certificate. The associated test and assessment against the requirements of EN 60079-0: 2006 EN 60079-1: 2007 EN 60079-11: 2007 is documented in Test Report Number GB/BAS/ExTR09.0050/00.
Baseefa09ATEX0080X /1	15 January 2010	The changes covered by issue 1 consist of: • Certification extended to include the use in DUST atmospheres. See GB/BAS/ExTR10.0013/00. • The upper operating ambient temperature range optionally changed from 50°C to 60°C. • Use of an alternative Ex d cable gland on the interconnecting cable. • Revisions to the Flow and Pressure Board. • Revisions to Sample Heater, bulkhead assembly. Introduction of the use of an alternative thermal fuse embedded in

Certificate No.	Date	Comments
		the transformer.
Baseefa09ATEX0080X /2	24 March 2010	The changes covered by issue 2 consist of: • Changes to the Distribution Board. • Changes to the Flow/Pressure Board. Changes to the Sample Heater.
Baseefa09ATEX0080X /3	21 June 2010	The changes covered by issue 3 consist of: • Assessment to EN 60079-0: 2009 to deal with: ○ The technical differences from EN 60079-0: 2006 which affect the dust assessment. ○ Changes to the marking to introduce the EPL marking. ○ Changes to the specification of the light metal contents of the Aluminium enclosure. Changes to the encapsulation requirements of the Sample Heater Board assembly
Baseefa09ATEX0080X /4	30 November 2010	The changes covered by issue 4 consist of: To permit minor electrical changes to the Barrier Board allowing alternative fuses to be fitted.
Baseefa09ATEX0080X Issue 5	10 December 2013	• To permit minor changes to the Power Supply Board that do not affect the original assessment. • To correct the current drawing list. The associated test and assessment is documented in Test Report No. GB/BAS/ExTR13.0301/00 held on technical file IECEx BAS 09.0029X.
Baseefa09ATEX0080X Issue 6	21 December 2016	To permit minor drawing changes and confirm that the current design meets the requirements of EN 60079-0:2012+A11:2013; EN 60079-1:2014; EN 60079-11:2012; and EN 60079-31:2014 including the revision of the equipment marking in accordance with these standards. The associated test and assessment is documented in Test Report No. GB/BAS/ExTR16.0369/00 held on technical file IECEx BAS 09.0029X.
Baseefa09ATEX0080X Issue 7	14 July 2022	To confirm that the current design meets the requirements of EN IEC 60079-0:2018. See report GB/BAS/ExTR22/.0101/00 for project 21/0294.
For drawings applicable to each issue, see original of that issue.		

4. UK Declaration of Conformity

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UK DECLARATION OF CONFORMITY

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

Equipment Type:	**SERVOTOUGH Oxy (01910B1) Gas Analyser**	
UK Statutory Instrument 2016 No. 1107	**The Equipment and Protective Systems Intended for use in Potentially Explosive Atmospheres Regulations 2016**	
UK Type Examination Certificate:	BAS21UKEX0479X	SGS Baseefa 1180
QA Notification & Approved Body:	ITS21UKQAN0056	Intertek 0359
Standards used:	EN IEC 60079-0:2018 EN 60079-1:2014 EN 60079-11:2012 EN 60079-31:2014	
Other Standards used:	EN 61010-1:2001	Servomex Reference: 01910A028
UK Statutory Instrument 2016 No. 1091	**The Electromagnetic Compatibility Regulations 2016**	
Standards & Specifications used:	EN 61326-1: 2013	
		Servomex Reference: 01910A027
UK Statutory Instrument 2012 No. 3032	**The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012**	
Standards & Specifications used:	EN IEC 63000:2018	
		Servomex Reference: 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 Statutory Instruments and is in conformity with the relevant UK statutory requirements.

Tyrone White, Global Operations Director

Chris Barton, Global Head of Quality

Date: 17 November 2022

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

5. Great Britian (UKEX) Certification

The SERVOTOUGH Oxy Series is UKEX certified as intrinsically safe, flameproof and dust ignition protected with the following marking options:

Gas Only

Ⓔx II 2G

Ex db ia IIC T4 Gb

-10°C ≤ Ta ≤ +60°C

Dust Only

Ⓔx II 2D

Ex tb IIIC T90°C Db

-10°C ≤ Ta ≤ +60°C

Gas and Dust

Ⓔx II 2GD

Ex db ia IIC T4 Gb Ex tb IIIC T90°C Db

-10°C ≤ Ta ≤ +60°C

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1 # UK-TYPE EXAMINATION CERTIFICATE

2 **Equipment or Protective System Intended for use in Potentially Explosive Atmospheres UKSI 2016:1107 (as amended) – Schedule 3A, Part 1**

3 UK-Type Examination Certificate Number: **BAS21UKEX0479X**

4 Product: **Servotough**

5 Manufacturer: **Servomex Limited**

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

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

8 SGS Baseefa, Approved Body number 1180, in accordance with Regulation 43 of the Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres Regulations 2016, UKSI 2016:1107 (as amended), certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres given in Schedule 1 of the Regulations.

The examination and test results are recorded in confidential Report No. **GB/BAS/ExTR22.0101/00**

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

EN IEC 60079-0:2018 EN 60079-1:2014 EN 60079-11:2012 EN 60079-31:2014

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 product is subject to the Specific Conditions of Use specified in the schedule to this certificate.

11 This UK-TYPE EXAMINATION CERTIFICATE relates only to the design and construction of the specified product. Further requirements of the Regulations apply to the manufacturing process and supply of this product. These are not covered by this certificate.

12 The marking of the product shall include the following:

See Schedule

SGS Baseefa Customer Reference No. **0965** Project File No. **21/0294**

This document is issued by the Company subject to its General Conditions for Certification Services accessible at http://www.sgs.com/en/Terms-and-Conditions.aspx and the Supplementary Terms and Conditions accessible at http://www.sgs.com/SGSBaseefa/Terms-and-Conditions.aspx. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained herein reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. It does not necessarily indicate that the equipment may be used in particular industries or circumstances. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, schedule included, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

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

UKAS PRODUCT CERTIFICATION
0191

R S SINCLAIR
TECHNICAL MANAGER
On behalf of SGS Baseefa Limited

13 # Schedule

14 ## Certificate Number BAS21UKEX0479X

15 Description of Product

The SERVOTOUGH digital analyser is designed for measuring gas concentrations using different transducers. Model "SERVOTOUGH Oxy" uses a paramagnetic transducer for measuring oxygen and model "SERVOTOUGH Spectra" uses an infra-red transducer for measuring other gases. The analyser is mains powered.

The analyser comprises an enclosure with two compartments, one of which is Ex db and contains a user interface board, power supply board and barrier board. The second compartment contains the intrinsically safe circuits comprising; distribution board, CPU board, display and keypad board, Compartment Heater, component certified gas sensor and optional Gas Sample Heater and/or Flow & Pressure Board. The circuits within the two compartments are connected together by means of a cable that leaves one compartment and goes outside the equipment then enters the second compartment. There is no direct connection between the two compartments.

Electrical connections are made to the analyser in the Ex db compartment on the user interface board by means of screw terminals.

The standards used in support of this certificate, and listed on the front sheet, are restricted in scope to atmospheres at normal atmospheric pressure and normal oxygen concentration. In considering the intended use of this equipment, additional safety factors have been applied to parts of the intrinsically safe circuit to allow for samples being analysed at up to 18 psia (1.24 bar). Further information is provided in GB/BAS/ExTR09.0050/00.

User Terminals in Ex d compartment

$U_m = 253V_{rms}$

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

Ⓔx II 2GD Ex db ia IIC T4 Gb (-10°C ≤ Ta ≤ +50°C) Ex tb IIIC T90°C Db (-10°C ≤ Ta ≤ +50°C)

or

Ⓔx II 2GD Ex db ia IIC T4 Gb (-10°C ≤ Ta ≤ +60°C) Ex tb IIIC T90°C Db (-10°C ≤ Ta ≤ +60°C)

16 Report Number

GB/BAS/ExTR22.0101/00

17 Specific Conditions of Use

1. The gas ports may be connected to a pressurised gas source with normal oxygen content up to a maximum pressure of 1.241bar absolute.
2. The unit is not to be installed in a high velocity dust laden atmosphere.
3. The unit must be mounted so that dust may only form a layer on the top surface.

18 Essential Health and Safety Requirements

In addition to the Essential Health and Safety Requirements (EHSRs) covered by the standards listed at item 9, the following are considered relevant to this product, and conformity is demonstrated in the report:

Clause	Subject
13	Protection against other hazards (LVD type requirements, etc.)
14	Overloading of equipment (protection relays, etc.)
22(1)	External effects
22(2)	Aggressive substances, etc.

19 Drawings and Documents

Number	Sheet	Issue	Date	Description
01910/888UK/0	1 & 2	0	17/06/2022	APPROVAL UKEX LABEL SUPPLEMENT

For other current drawings see Baseefa09ATEX0080X Issue 7.

6. North American (CSA) Approvals

CSA has assessed the SERVOTOUGH Oxy Series for use in the USA and Canada classified locations.

Class I, Division 1, Groups A, B, C, D T4

Class II, Division 1, Groups E, F, G

Class III,

Ex ia d IIC T4

Ex tD T90°C

AEx ia d IIC T4

AEx tD T90°C

(-10°C ≤Ta ≤+60°C)

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Certificate of Compliance

Certificate: 1961540 **Master Contract:** 153364

Project: 80120863 **Date Issued:** 2022-05-27

Issued to: Servomex Group Ltd.
Millbrook Industrial Estate Jarvis Brook
Crowborough, East Sussex TN6 3FB
UNITED KINGDOM

Attention: Thomas Johnson

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

C US

Issued by: Oong Lee

PRODUCTS

CLASS - C225803 - PROCESS CONTROL EQUIPMENT - Intrinsically Safe and Non Incendive Systems - For Hazardous Locations
CLASS - C225883 - PROCESS CONTROL EQUIPMENT-Intrinsically Safe and Non-Incendive Systems-For Hazardous Locations-Certified to U.S. Standards

Class I, Division 1, Groups A, B, C, D T4; Class II Division 1, Groups E, F, G; Class III:
Ex ia d IIC T4, Ex tD T90°C
AEx ia d IIC T4, AEx tD T90°C

- Series 1900 Digital Gas Analyzer (Models 1910 also identified as Model Servotough Oxy and Model 1920 also identified as Model Servotough Spectra), -10 °C ≤ Ta ≤ 60 °C, 100-120 or 220-240 Vac, 50-60 Hz, 50 VA

  Notes:
  1. The Digital Gas Analyzer is not intended to be used as a Combustible Gas Detector for sensing Lower Explosive Limit (LEL).
  2. The Digital Gas Analyzer is to be protected by an external 10 A circuit breaker.
  3. Only concentrations of sample gas up to 21% O_2 are permitted in a hazardous location.
  4. Only a sample gas with a pressure up to 18 psia may be used in a hazardous location.

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Certificate: 1961540 **Master Contract:** 153364

Project: 80120863 **Date Issued:** 2022-05-27

APPLICABLE REQUIREMENTS

ANSI/ISA 60079-0:2005	Apparatus for explosive gas atmospheres – General requirements
ANSI/ISA 60079-1:2005	Apparatus for explosive gas atmospheres – Flameproof enclosures
ANSI/ISA 60079-11:2002	Apparatus for explosive gas atmospheres – Intrinsic safety
ANSI/ISA 61241-0:2006	Electrical Apparatus for Use in Zone 20, Zone 21 and Zone 22 Hazardous (Classified) Locations − General Requirements
ANSI/ISA 61241-1:2006	Electrical Apparatus for Use in Zone 21 and Zone 22 Hazardous (Classified) Locations − Protection by Enclosures “tD”
CSA-C22.2 No. 25-1966	Enclosures for Use in Class II Groups E, F, and G Hazardous Locations.
CAN/CSA-C22.2 No. 30-M1986	Explosionproof Enclosures for use in Class I Hazardous Locations.
CSA E60079-0:02	Apparatus for explosive gas atmospheres – General requirements
CSA E60079-1:02	Apparatus for explosive gas atmospheres – Flameproof enclosures
CSA C22.2 No. 60079-11:14 (R2018)	Apparatus for explosive gas atmospheres – Intrinsic safety
CSA/ISA 61010-1:2004 (2nd Ed)	Safety Requirements for Electrical Equipment for Control
CAN/CSA-E61241-1-1-02	Electrical Apparatus for Use in the Presence of Combustible Dust – Part 1-1: Electrical Apparatus Protected by Enclosures and Surface Temperature Limitation - Specification for Apparatus

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MARKINGS

The manufacturer is required to apply the following markings:

- Products shall be marked with the markings specified by the particular product standard.
- Products certified for Canada shall have all Caution and Warning markings in both English and French.

Additional bilingual markings not covered by the product standard(s) may be required by the Authorities Having Jurisdiction. It is the responsibility of the manufacturer to provide and apply these additional markings, where applicable, in accordance with the requirements of those authorities.

The products listed are eligible to bear the CSA Mark shown with adjacent indicators 'C' and 'US' for Canada and US (indicating that products have been manufactured to the requirements of both Canadian and U.S. Standards) or with adjacent indicator 'US' for US only or without either indicator for Canada only.

Nameplate adhesive label material approval information:

The following markings are provided on a cUL approved adhesive-type 3M 7879EJ PET rectangular label. Round label is aluminum, minimum 0.5 mm thick and retained to the enclosure with a drive screw. Markings are per drawing 01910/876CS.

- Manufacturer's name: "Servomex Ltd", or CSA Master Contract Number "153364", adjacent to the CSA Mark in lieu of manufacturer's name.
- Model number: As specified in the PRODUCTS section, above.
- Electrical ratings: As specified in the PRODUCTS section, above.
- Manufacturing date in MMYY format, or serial number, traceable to month of manufacture.
- Hazardous Location designation: As specified in the PRODUCTS section, above (may be abbreviated).
- Optional marking (Class I, Zone 1; Class II, Zone 21);
- CSA Monogram 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;
- CSA Certificate number 08.1961540 (adjacent to CSA monogram);
- Maximum ambient with related T Code (T4 @ 60 °C max); (T90°C @ 60 °C max) or optionally (T4 @ 50 °C max); (T90°C @ 50 °C max)
- The following words or the equivalent:
    - "WARNING: SUBSTITUTION OF COMPONENTS MAY IMPAIR INTRINSIC SAFETY" and "AVERTISSEMENT: LA SUBSTITUTION DE COMPOSANTS PEUT COMPROMETTRE LA SECURITE INTRINSEQUE"
    - "WARNING: DO NOT OPEN WHEN AN EXPLOSION ATMOSPHERE MAY BE PRESENT" and "AVERTISSEMENT: NE PAS OUVRIR SI UNE ATMOSPHERE D'EXPLOSION PEUT ETRE PRESENTE"
    - "A SEAL SHALL BE INSTALLED WITHIN 450 mm OF THE ENCLOSURE" and "UN SCELLEMENT DOIT ÊTRE INSTALLÉ À MOINS DE 450 mm DU BOÎTIER."
    - "WARNING: This apparatus is not designed for use in oxygen enriched atmospheres" and "AVERTISSEMENT: Cet appareil n'est pas conçu pour une utilisation dans des atmosphères enrichies en oxygène"

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Supplement to Certificate of Compliance

Certificate: 1961540 **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
80120863	2022-05-27	Update to Report 1961540 to add alternative TMLM20124 AC/DC power module.
80089814	2021-12-08	Update to Report 1961540 to address customer request that an alternate fuse holder (F101, Schurter FAF031.3701) be added to the List of Mains Connected Safety Critical Components in Table 1.
70118771	2017-03-01	Update Report 1961540 for Models 01910 and 01920 to include revised drawings to: 1. Minor drawing changes that rationalize and clarify details for latest IEC standards. 2. Specification of Gore-Tex breathers amended due to obsolescence. Per review of submitted IEC ExTR Variation report with no change to Product Listing / Cert Record.
2716309	2014-05-01	Update to Report 1961540 to include revised drawings.
2375403	2011-01-27	Update to Report 1961540 to include replacement fuses on Barrier Boards (01910/853 & 01910/863).
2309260	2010-07-21	Update to Report 1961540 for alternate construction.
2202536	2010-01-27	Update to Report 1961540 for alternate construction, Type IP66 rating, tD rating and Class II.
2218209	2009-11-05	Update to Report 1961540 for alternate construction, Type 4X rating and 240 V supply rating.
2188165	2009-06-18	Update to Report 1961540 to add alternate cable gland.
2144102	2009-06-08	Update to Report 1961540 to identify as Series 1900 Analyzers and add new Boards and alternate construction.
1961540	2008-03-04	Original Certification of Series 1900IR Digital Gas Ana lyzers for Division 1 and Zone 1.

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7. International (IECEx) Certification

The SERVOTOUGH Oxy Series has been IECEx (International Electrotechnical Commission) certified for use in hazardous areas internationally. These certificates may be used to obtain National certification in many countries without additional testing.

The SERVOTOUGH Oxy Series is IECEx certified as intrinsically safe, flameproof and dust ignition protected with the following marking options:

Gas Only

Ex db ia IIC T4 Gb

-10°C ≤ Ta ≤ +60°C

Dust Only

Ex tb IIIC T90°C Db

-10°C ≤ Ta ≤ +60°C

Gas and Dust

Ex db ia IIC T4 Gb Ex tb IIIC T90°C Db

-10°C ≤ Ta ≤ +60°C

The following pages detail the relevant IECEx certificates up to 15th July 2022.

For the latest IECEx certificates please go to the IECEx website www.iecex-certs.com.

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IECEx Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION
IEC Certification System for Explosive Atmospheres

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

Certificate No.:	**IECEx BAS 09.0029X**	Page 1 of 4	Certificate history:
Status:	**Current**	Issue No: 7	Issue 6 (2016-12-21) Issue 5 (2013-12-10) Issue 4 (2010-12-10) Issue 3 (2010-06-23) Issue 2 (2010-03-24) Issue 1 (2010-01-29) Issue 0 (2009-06-03)
Date of Issue:	2022-07-15		
Applicant:	**Servomex Group Limited** Jarvis Brook Crowborough East Sussex TN6 3DU **United Kingdom**		
Equipment:	**SERVOTOUGH**		
Optional accessory:			
Type of Protection:	**Flameproof, Intrinsic Safety, Dust Protection by Enclosure**		
Marking:	**Ex db ia IIC T4 Gb (-10°C ≤ Ta ≤ +50°C)** **Ex tb IIIC T90°C Db (-10°C ≤ Ta ≤ +50°C)** **or** **Ex db ia IIC T4 Gb (-10°C ≤ Ta ≤ +60°C)** **Ex tb IIIC T90°C Db (-10°C ≤ Ta ≤ +60°C)**		

Approved for issue on behalf of the IECEx Certification Body: **R S Sinclair**

Position: **Technical Manager**

Signature: (for printed version)

Date: (for printed version) 15/07/2022

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 www.iecex.com or use of this QR Code.

Certificate issued by:

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

IECEx Certificate of Conformity

Certificate No.: **IECEx BAS 09.0029X** Page 2 of 4

Date of issue: 2022-07-15 Issue No: 7

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

Manufacturing locations:

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

IEC 60079-0:2017 Explosive atmospheres - Part 0: Equipment - General requirements
Edition:7.0

IEC 60079-1:2014-06 Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"
Edition:7.0

IEC 60079-11:2011 Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
Edition:6.0

IEC 60079-31:2013 Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure "t"
Edition:2

This Certificate **does not** indicate compliance with 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 Reports:

GB/BAS/ExTR06.0037/02
GB/BAS/ExTR06.0088/00
GB/BAS/ExTR08.0082/00
GB/BAS/ExTR08.0175/00
GB/BAS/ExTR08.0182/00
GB/BAS/ExTR09.0050/00
GB/BAS/ExTR10.0012/00
GB/BAS/ExTR10.0013/00
GB/BAS/ExTR10.0058/00
GB/BAS/ExTR10.0141/00
GB/BAS/ExTR10.0276/00
GB/BAS/ExTR13.0301/00
GB/BAS/ExTR16.0369/00
GB/BAS/ExTR22.0101/00

Quality Assessment Report:

GB/ITS/QAR06.0004/08

IECEx Certificate of Conformity

EQUIPMENT:
Equipment and systems covered by this Certificate are as follows:

The SERVOTOUGH digital analyser is designed for measuring gas concentrations using different transducers. Model “SERVOTOUGH Oxy” uses a paramagnetic transducer for measuring oxygen and model “SERVOTOUGH Spectra” uses an infra-red transducer for measuring other gases. The analyser is mains powered.

The analyser comprises an enclosure with two compartments, one of which is Ex db and contains a user interface board, power supply board and barrier board. The second compartment contains the intrinsically safe circuits comprising; distribution board, CPU board, display and keypad board, Compartment Heater, component certified gas sensor and optional Gas Sample Heater and/or Flow & Pressure Board. The circuits within the two compartments are connected together by means of a cable that leaves one compartment and goes outside the equipment then enters the second compartment. There is no direct connection between the two compartments.

Electrical connections are made to the analyser in the Ex db compartment on the user interface board by means of screw terminals.

The standards used in support of this certificate, and listed on the front sheet, are restricted in scope to atmospheres at normal atmospheric pressure and normal oxygen concentration. In considering the intended use of this equipment, additional safety factors have been applied to parts of the intrinsically safe circuit to allow for samples being analysed at up to 18 psia (1.24 bar). Further information is provided in GB/BAS/ExTR09.0050/00.

User Terminals in Ex d compartment

Um = 253Vrms

SPECIFIC CONDITIONS OF USE: YES as shown below:
1. The gas ports may be connected to a pressurised gas source with normal oxygen content up to a maximum pressure of 1.241bar absolute.

2. The unit is not to be installed in a high velocity dust laden atmosphere.

3. The unit must be mounted so that dust may only form a layer on the top surface.

IECEx Certificate of Conformity

DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)

Variation 7.1

To confirm that the current design meets the requirements of IEC 60079-0:2017 Edition 7.

ExTR: **GB/BAS/ExTR22.0101/00**	File Reference: **21/0294**

8. Japan (CML) Ex Certification

The SERVOTOUGH Oxy Series has been CML certified for use in hazardous areas in Japan.

The SERVOTOUGH Oxy Series is CML certified as intrinsically safe, flameproof and dust ignition protected.

Gas and Dust

Ex db ia IIC T4 Gb Ex tb IIIC T90°C Db

-10°C ≤ Ta ≤ +60°C

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防爆構造電気機械器具型式検定合格証

発行者： ユーロフィンズ・イーアンドイー・シーエムエル・リミテッド ユニット 1、ニューポートビジネスパーク、ニューポートロード、エレスメアポート CH65 4LZ 英国		
申請者	Servomex Group Ltd Jarvis Brook, Crowborough, East Sussex. TN6 3FB, England	
製造者	**Servomex Group Ltd** **Jarvis Brook, Crowborough, East Sussex. TN6 3FB, England**	
品名	ガス分析計	
型式の名称	1910 シリーズ	
防爆構造の種類	耐圧防爆構造、本質安全防爆構造、容器による粉じん防爆構造	
対象ガス又は蒸気の発火度及び爆発等級	IIC, IIIC, T4, T90°C Gb, Db	
製品上の Ex マーキング	Ex db ia IIC T4 Gb, Ex tb IIIC T90°C Db	
定格	-10°C ≤ Ta ≤ +60°C。250V~、最大 50VA	
使用条件	別紙 1 のとおり	
型式検定合格番号	**CML 20JPN1113X**	
有効期間	2020 年 06 月 26 日　から　2023 年 06 月 25 日まで	
	2023 年 06 月 26 日　から　2026 年 06 月 25 日まで	

機械等検定規則による型式検定に合格したことを証明する

2023 年 06 月 26 日

型式検定実施者：ユーロフィンズ・イーアンドイー・シーエムエル・リミテッド主任検定員

別紙 1　使用条件

i. ガスポートは、通常の酸素含有量が最大 1.241bar（絶対圧）以下の加圧気体源に接続することができる。

ii. 本機器を強い空気流の粉じん含有雰囲気内に取り付けないこと。

iii. 本機器は、粉じん層が上部表面だけに形成されるように取り付けること。

本証明書の複写に際しては
全体を変更なしに行うこと
www.CMLEx.com

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