1 **EC TYPE-EXAMINATION CERTIFICATE**

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

3 Certificate Number: **Sira 14ATEX1201X** Issue: **1**

4 Equipment: **Oxymitter Transmitters Series 4000, 5000, DR and Remote Electronics**

5 Applicant: **Emerson Process Management Rosemount Analytical, Inc.**

6 Address: 2400 Barranca Parkway
Irvine CA 92606
USA

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

8 Sira Certification Service, notified body number 0518 in accordance with Article 9 of Directive 94/9/EC of 23 March 1994, certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in the confidential reports listed in Section 14.2.

9 Compliance with the Essential Health and Safety Requirements, with the exception of those listed in the schedule to this certificate, has been assured by compliance with the following documents:

EN 60079-0:2012 EN 60079-1:2007 EN 60079-7:2007

The above list of documents may detail standards that do not appear on the UKAS Scope of Accreditation, but have been added through Sira's flexible scope of accreditation, which is available on request.

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 EC type-examination certificate relates only to the design and construction of the specified equipment. If applicable, further requirements of this Directive apply to the manufacture and supply of this equipment.

12 The marking of the equipment shall include the following:

Complete Probe Assemblies & DR Probes

II 2 G
Ex d IIB+H2 T4 Gb
-40°C ≤ Ta ≤ +70°C

Probe Assemblies without the Flame Arrestor End: "-NF"

II 2/- G
Ex d IIB+H2 T4 Gb/-
-40°C ≤ Ta ≤ +70°C

Remote Electronics: 'Split Architecture'

II 2 G
Ex d e IIB+H2 T5 Gb
-40°C ≤ Ta ≤ +70°C

Project Number 70020811

C Ellaby
Deputy Certification Manager

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SCHEDULE

EC TYPE-EXAMINATION CERTIFICATE **Sira 14ATEX1201X**
Issue 1

13 **DESCRIPTION OF EQUIPMENT**

The 4000, 5000 & DR series of Oxygen Transmitters measure the residual oxygen concentration in industrial flue gas streams for combustion process control. These comprise the following components: electronics housing, tube adaptor and probe tube with a circular mounting flange welded around the tube, next to the tube adaptor. The probe tube and its ribbon arrestor end are typically mounted inside process flue stack using the circular mounting flange. The device uses a heated zirconium oxide sensing cell that generates a millivolt signal based on the difference in gas concentration between the process flue gas and the reference ambient air. The probe communicates to the controller using the 4-20 mA HART (Highway Addressable Remote Transducer) protocol – 4000 Series Probes, or Foundation Fleldbus communication – 5000 Series Probes.

The probe parts are manufactured from aluminium alloy 360, 413 or 356-T6 or 300 Series SS. They are epoxy polyester or polyurethane painted. There is a main body and two 4.625-12 UNS -2B threaded covers, one blind and one windowed. These covers are secured via a tool secured latching mechanism. The electronics enclosure utilise two ½"-14 NPT conduit entries to facilitate field wiring. The electronics enclosure is separated from the probe tube compartment through the use of a Ex d certified line bushing. The remote electronics terminal compartment (junction box) is rated for increased safety (Ex e) and incorporates an Ex e certified terminal block

Remotely mounted electronics (Models 6A00094G06 and Models 6A00094G05) are typically used with the DR (Direct Replacement) Probe. The remote electronics enclosure uses the same type of enclosure as the probe assembly. The remote enclosure has a terminal block compartment or 'junction box' (Ex e) adjacent to the Ex d line bushing, replacing the probe tube and Adapter extension, secured to the enclosure body using fasteners identical to the ones used with the probe tube Adapter: 6g thread, size M6-1x14 SHCS, class A2-70 Stainless Steel. This terminal compartment uses a blind cover.

The probe tube adaptor is manufactured from Grade A360 aluminium and uses 12 full threads type M60x1.5-6H for engagement to the probe tube. Tube Adapter has three 1/8" NPT threaded through holes, all located on the same side, used only with the sintered metal and fittings to maintain the Flame-proof properties of the device.

The probe tube is manufactured from 316 SS and connects to the adaptor via a M60 x 1.5 – 6g threads. It can be of various sizes: 18 inches (457mm), 3 feet (0.91m) and 6 feet long (1.83m). The probe tube along with the flame arrestor end of the probe is mounted inside the process media or flue stack using the round mounting flange. The flange can be an ANSI of DIN type flange. The probe tube end and flame arrestor end are fitted with a diffuser for functionality purposes.

	**Oxymitter probe and Remote Electronics**

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SCHEDULE

EC TYPE-EXAMINATION CERTIFICATE **Sira 14ATEX1201X**
Issue 1

Inside combustion chambers and flue stacks the temperatures can be as high as 1050°C, well above the auto-ignition temperatures of combustible gases. Additionally, the internal heater temperature, located inside probe tube, can be as high as 550°C or 736°C to heat the sample gas to optimal reading temperatures, also well above auto-ignition temperatures of combustible gases. Special condition of use requires process temperature of the mounting flange to not exceed 115°C. This allows temperature code rating T4.

Integral and Direct Replacement Probes

Complete Probes Assemblies with Flame Arrestor End	**Probes Assemblies without the Flame Arrestor End ***
4000 Series - Models **OXT4C-abcdeef**	4000 Series - Models **OXT4CNF-abcdeef**
5000 Series - Models **OXT5C-abcdeef**	5000 Series - Models **OXT5CNF-abcdeef**
DR Series - Models **OXT4CDR-abcdeeff**	DR Series - Models **OXT4CDRNF-abcdeeff**

* Probes without the flame arrestor end must have the probe tube end mounted in Safe Area.

Split Architecture (Standalone) Remote Electronics Enclosure

4000 Series - Models **6A00094G06 & 6A00094G02**
5000 Series - Models **6A00094G05**

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SCHEDULE

EC TYPE-EXAMINATION CERTIFICATE **Sira 14ATEX1201X**
Issue 1

Product Nomenclature (May be followed by additional suffix designators for: Language, Arrangement, Filtered Customer Termination, Calibration Accessories, Hazardous Area Approval Body, Control Suite Functionality and Electronics to probe Cable, not affecting the protection concept)

Oxymitter Probes – OXT4C(NF) & OXT5C(NF) – abcdeef						
a	**Sensing Probe Type** (units with the "NF" option do not have the probe end Flame Arrestor)					
1	Ceramic Diffusion Element Probe (ANSI 3 in. 150 lbs.)					
2	Snubber Diffusion Element Probe (ANSI 3 in. 150 lbs.)					
3	Ceramic Diffusion Element Probe (DIN 2527)					
4	Snubber Diffusion Element Probe (DIN 2527)					
5	Ceramic Diffusion Element Probe (JIS)					
6	Snubber Diffusion Element Probe (JIS)					
7	Ceramic Diffusion Element Probe (ANSI 3 in. 300 lbs.) For Acidic Service					
8	Ceramic Diffusion Element Probe (ANSI 4 in. 300 lbs.) For Acidic Service					
	b	**Probe Assembly**				
	0	18 in. (457 mm) Probe				
	1	18 in. (457 mm) Probe with 3 ft. Bypass				
	2	18 in(457) Probe with Abrasive Shield				
	3	3 ft. (0.91m) Probe				
	4	3 ft. (0.91m) Probe with Abrasive Shield				
	5	6 ft. (1.83m) Probe				
	6	6 ft. (1.83m) Probe with Abrasive Shield				
		c	**Mounting Adapter – Stack Side**			
		0	No Adapter Plate			
		1	New Installation – Square weld plate with stud			
		2	Model 218 Mounting Plate (with Model 218 Shield Removed)			
		3	Other types of Mount			
			d	**Mounting Adapter – Probe Side**		
			0	No Adapter Plate		
			1	Probe Only (ANSI)		
			2	New Bypass or New Abrasive Shield (ANSI)		
			4	Probe Only (DIN)		
			5	New Bypass or New Abrasive Shield (DIN)		
			7	Probe Only (JIS)		
			8	New Bypass or New Abrasive Shield (JIS)		
				ee	**Electronic Housing & Filter Customer Termination – NEMA 4X, IP66**	
				11	Integral – Std Filtered Term - ATEX	
				12	Integral – Transient Filtered Term – ATEX	
				13	Split – Std Filtered Term – ATEX	
				14	Split – Transient Filtered Term - ATEX	
					f	**Communications**
					1	Electronics with Membrane Keypad w/ Blind Cover
					2	Electronics with Membrane Keypad w/ Window Cover
					3	Electronics with LOI Display w/ Window Cover (English Only)

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SCHEDULE

EC TYPE-EXAMINATION CERTIFICATE **Sira 14ATEX1201X**
Issue 1

Oxymitter Probes – OXT4CDR(NF) **- abcdeeff**						
a	**Sensing Probe Type** (units with the "NF" option do not have the probe end Flame Arrestor)					
1	115V Ceramic Diffusion Element Probe (ANSI)					
2	115V Snubber Diffusion Element (ANSI)					
3	115V Ceramic Diffusion Element Probe (DIN),					
4	115V Snubber Diffusion Element (DIN)					
7	115V Ceramic Diffusion Element Probe (ANSI 3" 300 lb bolt circle)					
8	115V Ceramic Diffusion Element Probe (ANSI 4" 300 lb bolt circle)					
A	44V Ceramic Diffusion Element Probe (ANSI)					
B	44V Snubber Diffusion Element (ANSI),					
C	44V Ceramic Diffusion Element Probe (DIN)					
D	44V Snubber Diffusion Element (DIN)					
	b	**Probe Assembly**				
	0	18 in. (457 mm) Probe				
	3	3 ft. (0.91m) Probe				
	5	6 ft. (1.83m) Probe				
		c	**Mounting Adapter – Stack Side**			
		0	No Adapter Plate			
		1	New Installation – Square weld plate with stud			
		2	Model 218 Mounting Plate (with Model 218 Shield Removed)			
		3	Competitor's Mount			
			d	**Mounting Adapter – Probe Side**		
			0	No Adapter Plate		
			1	Probe Only (ANSI)		
			4	Probe Only (DIN)		
				ee	**Electronic Housing & Filter Customer Termination – NEMA 4X, IP66**	
				11	Standard Filtered Termination	
				12	**Integral – Transient Filtered Termination**	
					ff	**Arrangement**
					03	Westinghouse/Rosemount Analog Electronics
					04	Westinghouse/Rosemount Digital or Universal Electronics
					05	Veritrim Electronics
					07	Model 132 digital electronics
					08	Yokogawa Electronics
					09	Other competitive Electronics-- specify brand and model

Variation 1 - This variation introduced the following changes:

i. The sintered element part number was changed from "1000S-.257-.250-20" to "1042996-01-200".
ii. The product nomenclature table was amended to correct typographical errors.
iii. A new model number of the Split Architecture (Standalone) Electronics Enclosure, 4000 Series was recognised; Model 6A00094G02; the product description was amended accordingly.

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14 DESCRIPTIVE DOCUMENTS

14.1 Drawings

Refer to Certificate Annexe.

14.2 Associated Sira Reports and Certificate History

Issue	Date	Report no.	Comment
0	05 January 2015	R70007936A	The release of the prime certificate.
1	15 July 2015	R70020811A	The introduction of Variation 1.

15 SPECIAL CONDITIONS FOR SAFE USE (denoted by X after the certificate number)

15.1 Mounting flange temperature shall not exceed 115°C.

15.2 Non-flame arrestor probe versions "**NF**" must have the probe tube mounted in Safe Area.

15.3 When the probe tube is mounted in Explosive Areas using flame arrestor end to complete the assembly, calibration lines that travel in and out of the equipment bringing reference gas, must not contain a pressure higher than 1.1 times the atmospheric pressure; these calibration lines shall not contain pure oxygen, acetylene, or combustible gases other than the gases for which this application has been investigated for: Group IIB +H_2 gases.

15.4 There are no interchangeable enclosure components.

15.5 Contact the original manufacturer for information of flameproof joint dimensions.

15.6 Fastener property class must be A2-70.

16 ESSENTIAL HEALTH AND SAFETY REQUIREMENTS OF ANNEX II (EHSRs)

The relevant EHSRs that are not addressed by the standards listed in this certificate have been identified and individually assessed in the reports listed in Section 14.2.

17 CONDITIONS OF CERTIFICATION

17.1 The use of this certificate is subject to the Regulations Applicable to Holders of Sira Certificates.

17.2 Holders of EC type-examination certificates are required to comply with the production control requirements defined in Article 8 of directive 94/9/EC.

17.3 Each probe tube assembly with welded joints and each flame arrestor of complete-assembly probes, shall be subjected to a routine overpressure test in accordance with EN 60079-1:2007, Clause 16 as follows: 589 PSI (40.62 bar), for at least 10 seconds. There shall be no permanent deformation, no leakage through the welded walls of the probe tube assembly and no deformation of the fasteners. The electronics enclosure and probes without flame arrestor present ("**NF**") are not subject to routine testing.

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Certificate Annexe

Certificate Number: **Sira 14ATEX1201X**

Equipment: **Oxymitter Transmitters**

Applicant: **Emerson Process Management Rosemount Analytical, Inc.**

Issue 0

Drawing	Sheets	Rev	Date (Sira stamp)	Title
1M03238	1 to 3	6	19 Dec 14	Flame arrester CENELEC WC3000 Probe
1U05676	1 to 4	9	19 Dec 14	Hub-flame arrestor O2-Probe, Explo
1U05677	1 to 2	4	19 Dec 14	F/A Hub assemblies CENELEC WC3000
3D39876	1 to 4	2	19 Dec 14	Schematic Oxymitter CPU
3D39879	1 to 2	1	19 Dec 14	Schematic Oxymitter Power Supply
4850B86	1 to 1	10	19 Dec 14	Assembly Electronics Housing Kit
5R10019	1 of 1	5	19 Dec 14	Enclosure, Electronics Machined thread
5R10111	1 to 2	7	19 Dec 14	Housing, Adapter Explo - Cast
5R10120	1 of 1	4	19 Dec 14	Tube, Explo Probe machined thread
5R10121	1 of 1	6	19 Dec 14	Flange, Probe End Explo OXT
5R10145	1 of 1	3	19 Dec 14	Assy, electronics housing cover – Oxymitter
5R10155	1 of 1	5	19 Dec 14	Plug, sintered metal flame arrestor / flow restrictor
6A00085	1 to 2	7	19 Dec 14	Assembly, electronics EEx d harness
6A00170	1 of 1	2	19 Dec 14	Assy, OXT Cover with window
6A00412	1 of 1	3	19 Dec 14	Fitting assembly, 1/8 NPT
6P00086	1 of 1	4	19 Dec 14	Adaptor Plug, EXPLO
6P00087	1 to 2	2	19 Dec 14	Adapter plate, split OXT (For probe)
6P00499	1 to 2	2	19 Dec 14	Remote Housing (Ex e compartment)
6R00013	1 to 9	7	19 Dec 14	Approval Drw-ATEX Oxymitter 4000 For Hazardous Locations
6R00014	1 to 9	8	19 Dec 14	Approval Drw-ATEX Oxymitter 5000 For Hazardous Locations
6R00015	1 to 6	5	19 Dec 14	Approval Drw-ATEX Oxymitter DR For Hazardous Locations
6S00020	1 of 1	1	19 Dec 14	OXT DR Probe adapter board
6R00119	1 to 9	2	29 Dec 14	Approval Drw-ATEX Oxymitter 4000 No Process Flame Arrestor
6R00120	1 to 9	2	29 Dec 14	Approval Drw-ATEX Oxymitter 5000 No Process Flame Arrestor
6R00121	1 to 6	2	29 Dec 14	Approval Drw-ATEX Oxymitter DR No Flame Arrestor

Issue 1

Drawing	Sheets	Rev.	Date (Sira stamp)	Title
5R10155	1 of 1	6	10 Jun 15	Plug, sintered metal flame arrestor / flow restrictor
6A00085	1 to 2	8	10 Jun 15	Assembly, electronics EEx d harness
6R00013	1 to 9	8	10 Jun 15	Approval Dwg-ATEX Oxymitter 4000 For Hazardous Locations
6R00014	1 to 9	9	15 Jun 15	Approval Dwg-ATEX Oxymitter 5000 For Hazardous Locations
6R00015	1 to 6	6	10 Jun 15	Approval Dwg-ATEX Oxymitter DR For Hazardous Locations
6R00119	1 to 9	3	10 Jun 15	Approval Dwg-ATEX Oxymitter 4000 No Process Flame Arrestor
6R00120	1 to 9	3	10 Jun 15	Approval Dwg-ATEX Oxymitter 5000 No Process Flame Arrestor
6R00121	1 to 6	3	10 Jun 15	Approval Dwg-ATEX Oxymitter DR No Flame Arrestor
4850B86	1 to 1	12	18 Jun 15	Assembly Electronics Housing Kit

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