EU-Type Examination Certificate

1. **EU-TYPE EXAMINATION CERTIFICATE**

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

3. **EU-Type Examination Certificate Number: ITS10ATEX17080X Issue 3**

4. **Product:** RXN2, RXN3 and RXN4 Analyser

5. **Manufacturer:** KAISER OPTICAL SYSTEMS, INC.

6. **Address:** 371 Parkland Plaza
Ann Arbor
MI 48103, USA

7. This product 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, Notified Body number 0359 in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council dated 26 February 2014, certifies that the 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.

   The examination and test results are recorded in confidential Intertek Report Ref 10044753 Issue 2 dated July 2013 and Intertek Report Ref 102976819DAL-001 issue 0 dated 12 May 2017.

9. Compliance with the Essential Health and Safety Requirements has been assured by compliance with EN 60079-0: 2012+A11:2013, EN 60079-11:2012, EN 60079-28:2007 and EN 50495:2010 except in respect of those requirements referred to at item 16 of the Schedule.

10. If the sign “X” is placed after the certificate number, it indicates that the product is subject to Specific Conditions of Safe 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:

    II (2) (1) G Ex [ia Ga] [op sh Gb] IIC
    -20°C ≤ Ta ≤ +40°C

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Michael Spector
Certification Officer
12 May 2017

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

SCHEDULE

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13. Description of Equipment or Protective System

The Kaiser Optical Systems, Inc. RXN2 RXN3 and RXN4 Analyzers consists of an enclosure fabricated from steel (painted mild steel or stainless steel) for location in a non-hazardous location housing a computer controlled spectrometer and laser for the purpose of on-line analysis of chemical processes. The enclosure may be free-standing or rack-mounted. The system provides intrinsically safe and protected optical source for connection to a probe in contact with a process in the hazardous area.

The optical fibre is protected by an intrinsically safe optical fibre breakage mechanism that is suitable for ATEX Category 2G applications. Laser power control is suitable for use in ATEX Category 1G applications. The system incorporates the following certified items:
GM International Galvanic Isolator D1032 DMT 01 ATEX E 042X
Stahl Galvanic Isolator DMT 02 ATEXE 195X

Interlock Loop IS Parameters:
Uo = 9.6 V dc
Io = 9.7 mA
Po = 23.2 mW
Co = 3.6uF
Lo = 330 mH
L/R Ratio = 1.53 mH/Ω

14. Report Number

Intertek Report Ref: 102976819DAL-001 issue 0 dated 12 May 2017.

15. Special Conditions of Certification

(a). Specific Conditions of Safe Use

1. The fibre optic cable linking the laser output to the pilot probe shall be installed so that the minimum bend radius specified by the cable manufacturer is not exceeded.

2. Where it is necessary to monitor the process level to ensure that the optical beam is not exposed to a potentially explosive atmosphere, the devices used to monitor the level shall be intrinsically safe or classed as simple apparatus, end be installed so as to provide a fault tolerance of 2 for category 1 equipment. The functional safety of this arrangement has not been assessed as part of this certification and it is the responsibility of the installer / user to ensure that an appropriate mechanism is in place.

3. Where IS Galvanic Isolators are added to the main enclosure in order to produce IS signals to external apparatus not covered by this certification, the IS galvanic Isolators shall have an ambient working temperature upper limit of at least 55°C. The IS parameters pertaining to these isolators shall be conveyed to the user in an appropriate manner. The IS nature of any such circuits has not been assessed as part of this certification and this certificate is not to be taken as indication that these IS circuits comply with relevant requirements.

(b). Conditions of Manufacture - Routine Tests
None

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16. Essential Health and Safety Requirements (EHSRs)

The relevant Essential Health and Safety Requirements (EHSRs) have been identified and assessed in Intertek Report Ref 10044753 Issue 2 dated July 2013.

17. Drawings and Documents

Title:	Drawing No.:	Rev. Level:	Date:
RXN2, 4 CHANNEL, ATEX KIT	2012000	X2	12/20/2016
RXN4, ATEX KIT	2011685	X3	12/19/2016
Assembly, RXN3L, ATEX KIT	2012006	X1	07/26/2010
Block diagram, laser and AC power interlocks	2009234	R5	06/07/2010
Jumper, interlock	2007871-101	R2	12/2/2005
Integrated Invictus Interlock System	2011965	X7	03/09/2012
Laser Power control and safety interlock	4002017	X1	06/04/2009
Safety statement, RXN Invictus Laser, IS barrier, Interlock connector and probe system.	4002019	X1	06/07/2009
ATEX Label, Base Non-Haz Zone Schematic	4002251	R2	05/12/2017
RXN Interlock System, Laser Power Interlock, GEN II CSM	2013443	X1	07/18/2013

18. Details of Certificate changes

September 2010
Issue 1 - Original certificate issue.

July 2013
Issue 2 - Update to interlock system and introduction of the Calibration Switching Module. (G101150319)

Issue 3, Intertek Report Ref. 102976819DAL-001 Issue 0 dated May 2017

This variation includes following revisions:

1. Following standard updates:

   From: EN 60079-0:2009
   To: EN 60079-0:2012 + A11: 2013

   AND

   From: EN 60079-11:2007
   To: EN 60079-11:2012

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2. Minor editorial updates to the drawings 2011685 and 2012000.

3. Removal of standard EN 60079-26: 2007 as the latest edition of this standard (EN 60079-26: 2015) no longer applies to 'ia' only for Ga equipment

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