

EU TYPE-EXAMINATION CERTIFICATE

1. EU type-examination Certificate (Module B)
2. Equipment or Protective System intended for use in potentially explosive atmospheres (Directive 2014/34/EU)



3. EU type examination certificate Nr **ITS10ATEX17080X R.1**

4. **Product:** RXN2, RXN3 and RXN4 Analyzers including IoT versions

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

Applicant: KAISER OPTICAL SYSTEMS, INC.

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

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

8. INTERTEK ITALIA S.p.A., Notified Body n° 2575 in accordance with article 17 of the Directive 2014/34/EU of the European Parliament and Council of the 26 February 2014, certifies that the 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 system intended for use in potentially explosive atmosphere, given in Annex II of the Directive.

The examination and tests results are recorded in confidential technical evaluation Intertek Report Nr. 103806740LHD-002 Issue 0 dated 30th October 2020

9. Compliance with the Essential Health and Safety Requirements has been assured by compliance with EN IEC 60079-0:2018, EN 60079-11:2012, EN 60079-28:2015 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 Special Conditions for 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

Tamb: -20°C to +40°C

Certificate issue date

30 October 2020



Fabrizio Massei
Certification Officer
Intertek Italia S.p.A. (NB 2575)



PDR N° 277B

Membro degli Accordi di Mutuo Riconoscimento EA, IAF e ILAC

Signatory of EA, IAF and ILAC Mutual Recognition Agreements



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 Italia S.p.A. Via Miglioli, 2/A - 20063 Cernusco sul Naviglio, Milano - Italy



SCHEDULE

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13. DESCRIPTION OF THE 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:

Equipment	Certificate Number	Marking Code
GM Galvanic Isolator D1032	DMT 01 ATEX E 042X	Ex nA [ia Ga] IIC T4 Gc
Stahl Galvanic Isolator	DMT 02 ATEX E 195X	[Ex ia Ga] IIC

Interlock Loop IS Parameters:

Uo = 9.6 V dc
Io = 9.7 mA
Po = 23.2 mW
Co = 3.6µF
Lo = 330 mH
L/R Ratio = 1.53 mH/Ω

CE Marking shall be accompanied by the identification number of the Notified Body responsible for surveillance of production.

14. DRAWINGS AND DOCUMENTS

TITLE	DOCUMENT Nr	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	07-16-2010
Jumper, interlock	2007871-101	R2	12-02-2005
Integrated Invictus Interlock System	2011965	X7	03-09-2012



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TITLE	DOCUMENT Nr	LEVEL	DATE
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	X2	2020-09-25

Note: An * is included before the title of documents that are new or revised.

Copies of the above listed documents are kept at Intertek Italia S.p.A. archive.

15. SPECIAL CONDITIONS FOR SAFE USE

- 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.
- 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, and be installed so as to provide a fault tolerance of 2 for Category 1 equipment or fault tolerance of 1 for Category 2 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.
- 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.

16. ESSENTIAL HEALTH AND SAFETY REQUIREMENTS

The relevant essential Health and Safety Requirements have been identified and assessed in Intertek Report Nr. 103806740LHD-002 Issue 0 dated 30th October 2020

17. ROUTINE (FACTORY) TESTS

The manufacturer shall verify operation of the fibre-breakage interlock and the optical power interlock.



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18. DETAIL OF CERTIFICATE CHANGES

- 01-10-2019:** First emission
- 30-10-2020 (R.1):** Update to standards.
Introduction of IoT versions.
Introduction of routine tests, in accordance with latest edition standard requirements.