

1 EU-TYPE EXAMINATION CERTIFICATE



2 Equipment or Protective systems intended for use in Potentially
Explosive Atmospheres - Directive 2014/34/EU

3 EU-Type Examination Certificate No: FM14ATEX0004X

4 Equipment or protective system: 3909010, E²T Pulsar 4 Advanced Infra-Red Pyrometer
(Type Reference and Name) 3909020, E²T Pulsar 4 Infra-Red Pyrometer

5 Name of Applicant: LumaSense Technologies GmbH

6 Address of Applicant: Kleyerstrasse 90,
Frankfurt, D-60326,
Germany

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

8 FM Approvals Europe Ltd, notified body number 2809 in accordance with Article 17 of Directive 2014/34/EU of 26 February 2014, 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 confidential report number:

3049884 dated 24th June 2014

9 Compliance with the Essential Health and Safety Requirements, with the exception of those identified in item 15 of the schedule to this certificate, has been assessed by compliance with the following documents:

EN IEC 60079-0:2018, EN 60079-1:2014 and EN 60529:1991+A1:2000+A2:2013

10 If the sign 'X' is placed after the certificate number, it indicates that the equipment is subject to specific conditions of use specified in the schedule to this certificate.

11 This EU-Type Examination certificate relates only to the design, examination and tests of the specified equipment or protective system in accordance to the directive 2014/34/EU. 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:



II 2 G Ex db IIB+H₂ T4 Gb Ta= -40°C to +60°C



Digitally signed by Damien Mc
Ardle
DN: cn=Damien Mc Ardle, o=FM
Approvals, ou=FM Approvals
Europe Ltd,
email=damien.mcardle@fmappr
ovals.com, c=IE
Date: 2019.12.03 20:19:18 Z

Damien Mc Ardle
Certification Manager, FM Approvals Europe Ltd.

Issue date: 03rd December 2019

THIS CERTIFICATE MAY ONLY BE REPRODUCED IN ITS ENTIRETY AND WITHOUT CHANGE

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SCHEDULE



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to EU-Type Examination Certificate No. FM14ATEX0004X

13 **Description of Equipment or Protective System:**

The LumaSense E²T Pulsar 4 series of detection systems are designed for continuous and instantaneous measurement of Refractory Temperature (RT), Gas Temperature (GT) or Integrated Temperature (FF) in the vessel away from the heat, vibration and corrosive gases. Each system allows visual inspection of combustion processes, refractory cure out and preventative maintenance while the vessel is pressurized and fully operational. The Advanced model is used for monitoring complex processes, such as O₂ enrichment, which normally involve higher temperatures and demand close monitoring.

Operation Temperature Ranges:

The ambient operating temperature range of the Pulsar 4 range is -40°C to 60°C. Process temperature range is 350°C to 2000°C.

Electrical data:

The Pulsar 4 models can be configured as 24V dc, 115V ac or 230V ac, 90W.

Ingress Protection rating: IP66

14 **Specific Conditions of Use:**

1. Contact manufacturer for flamepath joint design information.
2. The cable glands, cable sealing device or blanking plugs for the unused entries (as applicable) shall be suitably certified with a minimum Ex gas rating of Ex db IIB+H₂ Ta = -40°C to 60°C Gb.
3. In order to maintain an IP66 rating for the equipment, the cable glands shall be suitably certified with a minimum rating of IP66.
4. To reduce the risk due to electrostatic discharge, the user shall regularly clean the enclosures with a damp cloth to limit dust layers on the enclosure sides.
5. The socket head screws used on the enclosure shall be stainless steel screws grade A4-70; M8 Socket Head Cap / Allen Screws with minimum yield strength 800Mpa.

15 **Essential Health and Safety Requirements:**

The relevant EHSRs that have not been addressed by the standards listed in this certificate have been identified and assessed in the confidential report identified in item 8.

16 **Test and Assessment Procedure and Conditions:**

This EU-Type Examination Certificate is the result of testing of a sample of the product submitted, in accordance with the provisions of the relevant specific standard(s), and assessment of supporting documentation. It does not imply an assessment of the whole production.

Whilst this certificate may be used in support of a manufacturer's claim for CE Marking, FM Approvals Europe Ltd accepts no responsibility for the compliance of the equipment against all applicable Directives in all applications.

This Certificate has been issued in accordance with FM Approvals Europe Ltd's ATEX Certification Scheme.

17 **Schedule Drawings**

A list of the significant parts of the technical documentation is annexed to this certificate and a copy has been kept by the Notified Body.

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18 Certificate History

Details of the supplements to this certificate are described below:

| Date | Description |
|--------------------------------|--|
| 25 th June 2014 | Original Issue. |
| 25 th June 2015 | <u>Supplement 1:</u> Report Reference: - 3049884rev141127 dated 19 th June 2015 Description of the Change: Drawing updates. |
| 09 th November 2015 | <u>Supplement 2:</u> Report Reference: - RR203064 Dated 05 th November 2015. Description of the Change: Minor documentation changes. |
| 01 st June 2016 | <u>Supplement 3:</u> Report Reference: - 3057816 Dated 09 th May 2016. Description of the Change: IP rating updated to IP66 & relevant documentation updates. |
| 26 th April 2018 | <u>Supplement 4:</u> Report Reference: - RR212076 Dated 18 th April 2018. Description of the Change: Certification standards updated to EN 60079-0:2012 + A11:2013 & EN 60079-1:2014; flameproof marking updated & documentation updated. |
| 03 rd December 2019 | <u>Supplement 5:</u> Report Reference: - PR453578 Dated 01 st November 2019. Description of the Change: The change is related to the documentation update due to the removal of the ¼ inch threaded holes on the enclosure and also, the revision to the label drawings and the installation manual due to change due to the Notified Body change from 1725 to 2809. Update to the Certification Standards. |

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Blueprint Report

LumaSense Technologies GmbH (145373)

Class No 3615

Original Project I.D. 3049884

Certificate I.D. FM14ATEX0004X

| <u>Drawing No.</u> | <u>Revision Level</u> | <u>Drawing Title</u> | <u>Last Report</u> |
|--------------------|-----------------------|--|--------------------|
| 3909007 | 00 | Lid Casting | 3049882 & 3049884 |
| 3909008 | 00 | Housing Casting | 3049882 & 3049884 |
| 3909009 | d | Pulsar 4 Surface Treatment | PR453578 |
| 3909011 | d | Lid | RR203064 |
| 3909012 | h | Housing | PR453578 |
| 3909013 | a | Schraubring | 3049882 & 3049884 |
| 3909014 | c | Fenster, Metaglas | PR453578 |
| 3909066 | g | Label Pulsar 4 | PR453578 |
| 3909072 | e | Pulsar 4 Service Connections | PR453578 |
| 3909074 | e | Pulsar 4 Flamepath | PR453578 |
| 3909075 | a | Toroidal Transformer RT96,5TG-115/115/24/5 | 141127 |
| 3909076 | 00 | Pulsar 4 Main Board Block Diagram | 3049882 & 3049884 |
| 3909077 | a | Pulsar 4 Power Supply Block Diagram | RR203064 |
| 3909093 - EN | G | Pulsar 4 User Manual | PR453578 |