



DET NORSKE VERITAS

EC-TYPE EXAMINATION CERTIFICATE

[2] **EQUIPMENT OR PROTECTED SYSTEM INTENDED FOR USE IN POTENTIALLY EXPLOSIVE ATMOSPHERES DIRECTIVE 94/9/EC**

[3] EC-Type Examination Certificate Number: **DNV 09 ATEX 55990X** **rev. 3**

[4] Equipment or Protective System: **Wireless- Single Gas Detector FTD-3000**

[5] Applicant – Manufacturer or Authorized representative: **Rae Systems**

[6] Address: **3775 North First Street, San Jose
California 95134, USA**

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



[8] DNV, notified body number 0575 in accordance with Article 9 of Council Directive 94/9/EC of 23 March 1994, certifies that this 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 systems intended for use in potentially explosive atmospheres given in Annex II to the Directive.
The examination and test results are recorded in confidential report no. : **2009-3359, rev. 2**

[9] Compliance with the Essential Health and Safety Requirements has been assured by compliance with:
EN 60079-0: 2009, EN 60079-11: 2007, EN 50303: 2000

[10] If the sign “X” is placed after the certificate number, it indicates that the equipment or protective system 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 or protected system. If applicable, further requirements of this Directive apply to the manufacturer and supply of this equipment or protective system.

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

 **II 1G** **Ex ia IIC T4 (-40°C ≤ Ta ≤ + 50°C)**
 **I M1** **Ex ia I**

Oslo, 2013-12-04
for Det Norske Veritas AS

Bjørn Spongsveen
Certification Manager



Notice: This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid.

If any person suffers loss or damage which is proved to have been caused by any negligent act or omission of Det Norske Veritas, then Det Norske Veritas shall pay compensation to such person for his proved direct loss or damage. However, the compensation shall not exceed an amount equal to ten times the fee charged for the service in question, provided that the maximum compensation shall never exceed USD 300.000. In this provision "Det Norske Veritas" shall mean the Foundation Det Norske Veritas as well as all its subsidiaries, directors, officers, employees, agents and any other acting on behalf of Det Norske Veritas.



[13]

Schedule

[14] **EC-TYPE EXAMINATION CERTIFICATE No.:** DNV 09 ATEX 55990X

rev. 3

Certificate History

Revision	Description	Issue date
1	Original certificate	2009-06-29
2	Updated parameters in special condition 2, due to the addition of two alternative sensors. Included compliance with EN 50303: 2000	2013-12-03
3	Corrections: Changed type designation in last line of special conditions.	2013-12-04

[15] Description of Equipment or Protective System

FTD-3000 Wireless Single Gas Detector is a single gas detector integrated with a wireless mesh network enabled transmission radio module. The FTD-3000 can be fitted with combustible gas sensor (LEL), NDIR sensor for detection of hydrocarbons or carbon dioxide or electrochemical gas sensor (EC). Optionally when the FTD-3000 is used as a router it will not have either type of the sensors installed.

When fitted with either LEL, NDIR or EC type sensor it can work as a fixed monitor or a portable monitor. It has a LCD display, three push buttons and an opening for the buzzer sound output. On the top of the enclosure there is a threaded connector for the antenna and at the bottom of the enclosure there are two openings covered with threaded caps. The opening on the right is for the D size cell replacement or optionally for the adaptor of the external DC power supply. The FTD-3000 is powered by a single D size Lithium-thionyl Chloride non-rechargeable cell or by an external 3.6 V power source through the adaptor.

Type Identification

MeshGuard FTD-3000

Electrical Data

FTD-3000 EC

200mA@3.6V during transmission

<0.5mA@3.6V during standby

FTD-3000 LEL

300mA@3.6V during transmission

100mA@3.6V during standby

[16] **Report No.:** 2009-3359, rev 2

Project No.: PRJC-491751-2013-PRC-NOR



EC-TYPE EXAMINATION CERTIFICATE No.: DNV 09 ATEX 55990X

rev. 3

Descriptive documents

Number	Sheets	Title	Rev.	Date
D01-0902-GEN	1	FTD-3000 Intrinsic Safety Analysis	3	2009/02/18
D01-1102-IEC	5	FTD-3000 Main Board (Schematic)	3	2009/02/18
D01-1102-BOM	3	FTD-3000 Main board BOM	4	2009/02/18
D01-1002-000	10	FTD-3000 Main PCB Mechanical	3	2009/01/21
D01-1103-IEC	1	FTD-3000 Sensor Board (Schematic)	2	2009/01/19
D01-1103-BOM	1	FTD-3000 Sensor board BOM	1	2008/09/01
D01-1003-000	8	FTD-3000 Sensor PCB Mechanical	2	2008/09/25
D01-4xxx-LBL-IEC	1	FTD-3000 nameplate	5	2009/06/22
D01-ESD-001	1	MeshGuard LCD window ESD film	A	2007/10/11
D01-4014-CTL	16	Controlled part of FTD-3000 Manual	C	2009/04/20
D01_MODM_001	1	FTD-3000 Safety Component specification (<i>RF Module</i>)	B	2008/12/23
D01-1100-Sen	2	List of Electrochemical Sensors for Meshguard detector FTD-2000	A	2007/06/18
D01-1101-000	1	MeshGuard(FTD-2000) Sensor Board (<i>Schematic</i>)	2	2007/04/10
D01-1101-BOM	1	MeshGuard Sensor Board BOM	3	2007/05/30
D01-1001-000	8	FTD-2000 Sensor PCB Mechanical	1	2007/04/20
D01-3EPA-001	1	FTD-3000 External Power Adaptor	3	2009/04/27
500_0111_0 00	1	Component Specification (<i>RAE Part number of two cell types used</i>)	A	2007/07/08

Descriptive documents relating to revision 2 of this certificate

Number	Sheets	Title	Rev.	Date
D01-1103-SCH-1	1	FTD-3000 Optosense MIPEX Sensor Board	2	2012/10/08
D01-1103-BOM-1	1	FTD-3000 New HC Sensor PCB BOM	3	2012/12/26
D01-1003-001	10	FTD-3000 Optosense MIPEX Sensor Board (PCB Layout)	A	2012/10/12
D01-4xxx-LBL-IEC	1	FTD-3000 Nameplate	6	2013/06/07

[17] Special Conditions for Safe Use

1. It is a condition of safe use that the apparatus must be powered by one of the two types of nonrechargeable cells (RAE Part No. 500_0111_000).

EVE ER34615 Lithium-thionyl Chloride Size D, 3.6 V.

Xeno XL-205F Thionyl Chloride Lithium, Size D, 3.6 V

2. It is a condition of safe use that the apparatus must be powered by a galvanically isolated external power supply. The following input parameters must be taken into account when external source is used

$U_i = 3.6 \text{ V}$

$C_i = 86 \text{ } \mu\text{F}$

$L_i/R_i = 3.5 \text{ } \mu\text{H}/\Omega$

RAE PowerPak type FTB-1000 is an applicable external power source.

[18] Essential Health and Safety Requirements

See part 9 of this certificate

END OF CERTIFICATE

If any person suffers loss or damage which is proved to have been caused by any negligent act or omission of Det Norske Veritas, then Det Norske Veritas shall pay compensation to such person for his proved direct loss or damage. However, the compensation shall not exceed an amount equal to ten times the fee charged for the service in question, provided that the maximum compensation shall never exceed USD 300.000. In this provision "Det Norske Veritas" shall mean the Foundation Det Norske Veritas as well as all its subsidiaries, directors, officers, employees, agents and any other acting on behalf of Det Norske Veritas.