



DET NORSKE VERITAS

EC-TYPE EXAMINATION CERTIFICATE

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

[3] EC-Type Examination Certificate Number: **DNV-2007-OSL-ATEX-8958X** Rev. 2

[4] Equipment or Protective System: **Wireless- Single Gas Detector FTD-2000**

[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 reports listed in section 14.

[9] Compliance with the Essential Health and Safety Requirements has been assured by compliance with:
EN 60079-0: 2006 and EN 60079-11: 2007

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

Høvik, 2010-05-10
for Det Norske Veritas Certification AS

Steinar Kristensen
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-2007-OSL-ATEX-8958X

Rev. 2

Certificate History

Revision	Description	Report no.	Issue date
1	Original certificate	2007-3374 rev.1	2007-10-19
2	Scope extended with M1, extended temperature range	2007-3374 rev.2	2010-05-10

[15] Description of Equipment or Protective System

Wireless Single Gas Detector FTD-2000 is a single toxic gas detector integrated with a wireless mesh network enabled transmission radio module. It can work as a fixed device. 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 larger opening is for the D size battery replacement or optionally for the adaptor of the external DC power supply. The smaller opening is for the gas sensor. The apparatus 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.

The circuit consists of three printed circuit boards. The FTD-2000 main board, FTD-2000 sensor board and the RF module.

Type Identification

MeshGuard FTD-2000

Electrical Data

200mA@3.6V during transmission
<0.5mA@3.6V during standby

Degrees of protection (IP Code)

IP 55

[16] **Project No.:** PRJC-230564-2010-PRC-NOR

Descriptive Documents

Number	Title	Rev.	Date
D01-ASSM-001	MeshGuard Enclosure	A	2007-10-12
D01-xxxx-IEC	FTD-2000 nameplate	1	2007-10-15
D01-1100-BOM	MeshGuard Main Board BOM (2 sheets)	3	2007-05-30
D01-1100-ISA	Meshguard (FTD-2000) Equivalent Cicuit block diagram	4	2007-06-18
D01-1100-000	MeshGuard(FTD-2000) Main Board (5 sheets schematics)	2	2007-05-01
D01-1000-000	FTD-2000 Main PCB (10 sheets)	3	2007-05-15
D01-1101-000	MeshGuard(FTD-2000) Sensor Board	2	2007-04-10
D01-1101-BOM	MeshGuard Sensor Board BOM	3	2007-05-30
D01-1001-000	FTD-2000 Sensor PCB (8 sheets)	1	200-04-20
D01-MODM-000	FTD 2000 Safety Component specification	A	2007-04-16
904-0501-017	FTD-2000 operation manual controlled part (6 sheets)	A	2007-06-20

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Rev. 2

Descriptive documents pertaining to revision 2:

Number	Title	Rev.	Date
D01-1100-000	MeshGuard (FTD-2000) Main Board (5 sheets)	3	2010-02-25
D01-1100-BOM-CSA	MeshGuard Main Board BOM (2 sheets)	5	2010-02-25
D01-xxxx-IEC	FTD-2000 Nameplate	C	2010-03-10
500-0111-000	Battery, Lithium, Non-rechargeable, 3.6V, Size D	A	2007-07-08

[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

$U_i = 3.6 \text{ V}$

$C_i = 63 \mu\text{F}$

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

[18] Essential Health and Safety Requirements

See part 9 of this certificate

END OF CERTIFICATE

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