



1. **EC-TYPE EXAMINATION CERTIFICATE**

2. **Equipment or Protective System Intended for use
in Potentially explosive atmospheres
Directive 94/9/EC**

3. Reference: **VTT 04 ATEX 051X Issue 1**

4. Equipment: **Optical level sensor**

Certified types: **Optolevel 189T, 1807, 2407, 1814V5 and 2414V5**

5. Manufactured by: **Optolevel**

6. Address: **Puomikatu 3
FI-37150 Nokia
Finland**

7. This equipment or protective system and any acceptable variations thereto is specified in the schedule and possible supplement(s) to this Certificate and the documents therein referred to.

8. VTT Industrial Systems, notified body number 0537, in accordance with Article 9 of the Council Directive 94/9/EC of 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 system 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 VTT-S-04948-14 has been completed on these verifications and tests.

9. Compliance with the Essential Health and Safety Requirements has been assured by compliance with the standards:

EN 60079-0 (2012)
EN 60079-11 (2012)



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, examination and tests of the specified equipment or protective system in accordance to the directive 94/9/EC. Further requirements of the Directive apply to the manufacturing process and supply of this equipment or protective system. This certificate does not cover these.
12. The marking of the equipment or protective system shall include the following:



II 1/2 G

Ex ia IIC T6

T_{amb} -40 °C... +50 °C

Espoo, 7.11.2014

VTT Expert Services Ltd



Risto Sulonen
Product Manager



Kari Koskela
Expert

13.

Schedule

14.

EC-TYPE EXAMINATION CERTIFICATE VTT 04 ATEX 051X Issue1

15.

Description of Equipment

The optical level sensor shall be connected to a transmitter or a diode safety barrier or other associated electrical apparatus, which is approved for group [Ex ia] IIC. The electrical components and the circuit board are encapsulated with casting compound.

Electrical data

The maximum input values are:

$U_i = 14 \text{ V}$

$I_i = 420 \text{ mA}$

$C_i = 2 \text{ nF}$

$L_i = 0,01 \text{ mH}$

Documents:

Description of the system, OPTOLEVEL 189T
Sensor pipe 189T, Drawing No. 189T_001, 03.05.2004
Small prism, Drawing No. Prisma1_001, 03.05.2004
Description of the system, OPTOLEVEL 1840
Sensor pipe 1840, Drawing No. 1840_001, 03.05.2004
Description of the system, OPTOLEVEL 1880
Sensor pipe 1880, Drawing No. 1880_001, 03.05.2004
Description of the system, OPTOLEVEL 2240
Sensor pipe 2240, Drawing No. 2240_001, 03.05.2004
Description of the system, OPTOLEVEL 2440
Sensor pipe 2440, Drawing No. 2440_001, 03.05.2004
Middle size prism, Drawing No. Prisma2_001, 03.05.2004
Description of the system, OPTOLEVEL 2480
Sensor pipe 2480, Drawing No. 2480_001, 03.05.2004
Description of the system, OPTOLEVEL 2440/2
Sensor pipe 2440/2, Drawing No. 2440_2_001, 03.05.2004
Long prism 35, Drawing No. Prisma3_001, 03.05.2004
Assembly 2440_2, Drawing No. KP2440_2_001, 03.05.2004
Description of the system, OPTOLEVEL 2480/2
Sensor pipe 2480_2, Drawing No. 2480_2_001, 03.05.2004
Long prism 63, Drawing No. Prisma4_001, 03.05.2004
Assembly 2480_2, Drawing No. KP2480_2_001, 03.05.2004
Circuit board layout, 'ya_anturi.ddb', Optolevel 1,2/01, 04.10.2001
Circuit diagram, Optolevel 1,2/01, 03.10.2001
Circuit board, Component list, Bill of material
Circuit diagram, 'ya_anturi2', No. 1.0 v 1.0, dated 31.12.2007*
Circuit board layout, 'Optolevel ya_anturi2.2'*
Connector, 'Eng_ss_412-20000_B[1].pdf', 9 pages*
Connector instructions, 'S_114_20045_F3[1]-pdf', 6 pages*
Connector guide, 'Liitinhje1_1.pdf', 1 page*
Casting compound, 'Loctite_9483.pdf', 3 pages*
18 mm prisma, OL002_4607, rev no. 1, 28.09.2006*
18 mm putki/rakenne, OL001_4607, rev no. 1, 06.03.2006*
23,5 mm prisma, OL003_3906, rev no. 1, 28.09.2006*
23,5 mm putki/rakenne, OL001_1007, rev no. 1, 06.03.2007*
Assembly instructions, 4 pages, 10.10.2008*
Anturin 5-johdin elektroniikan turvallisuustarkastelu (safety description) Rev. V1.0, 12.2.2014**

5-johdin.SchDoc (schematic diagram), 29.7.2014**
BOM 5-johdin.PrjPCB (PCB component list)**
*) *Added within supplement 1/ 18.02.2009*
**) *Added within Issue 1*

16. Report No.

VTT-S-04948-14

17. Special conditions for safe use:

The permissible ambient temperature range is $-40\text{ °C} \leq T_a \leq +50\text{ °C}$.

The metal parts of the sensor shall be earthen.

The sensor is constructed with permanently connected cable (maximum length 10 m) and it shall be connected appropriately to the supplying unit.

The enclosure of the sensor is of light metal so there may be sparks, if the enclosure is subjected to friction or impact.

18. Essential Health and Safety Requirements

Met by compliance with the standards referred in point 9.

Certificate history:

Issue	Date	Report No.	Comment
-	4.6.2004	TUO26-044336	Prime certificate
-	18.2.2009	-	Supplement 1
1	7.11.2014	VTT-S-04948-14	Addition of types 1814v5 and 2414V5. Compliance with EN 60079-0 (2012) and EN 60079-11 (2012) verified. Obsolete Certified types removed.

Espoo, 7.11.2014

VTT Expert Services Ltd



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