

# CERTIFICATE OF CONFORMITY



1. **HAZARDOUS (CLASSIFIED) LOCATION ELECTRICAL EQUIPMENT PER US REQUIREMENTS**

2. **Certificate No:** FM16US0031X  
3. **Equipment:** FG-OD Smart Sensing Cable  
(Type Reference and Name)

4. **Name of Listing Company:** TTK SAS

5. **Address of Listing Company:** 7 Allee des Chataigniers  
Trappes  
78190  
France

6. The examination and test results are recorded in confidential report number:

3054085 dated 14<sup>th</sup> November 2016

7. FM Approvals LLC, certifies that the equipment described has been found to comply with the following Approval standards and other documents:

FM Class 3600:2011, FM Class 3610:2015, FM Class 3810:2005,  
ANSI/ISA 60079-0:2013, ANSI/ISA 60079-11:2014

8. 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.

9. This certificate relates to the design, examination and testing of the products specified herein. The FM Approvals surveillance audit program has further determined that the manufacturing processes and quality control procedures in place are satisfactory to manufacture the product as examined, tested and Approved.

10. Equipment Ratings:

Intrinsically Safe for Class I, Division 1, Groups C and D T4; and Class I, Zone 0, AEx ia IIB T4 hazardous (classified) locations, indoors and outdoors with an ambient temperature rating of -30 °C to +100 °C.

**Certificate issued by:**

J. E. Marquedant  
Manager, Electrical Systems

19<sup>th</sup> December 2016

Date

To verify the availability of the Approved product, please refer to [www.approvalguide.com](http://www.approvalguide.com)

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

FM Approvals LLC. 1151 Boston-Providence Turnpike, Norwood, MA 02062 USA  
T: +1 (1) 781 762 4300 F: +1 (1) 781 762 9375 E-mail: [information@fmapprovals.com](mailto:information@fmapprovals.com) [www.fmapprovals.com](http://www.fmapprovals.com)

# SCHEDULE



US Certificate Of Conformity No: FM16US0031X

11. The marking of the equipment shall include:

Class I Division 1, Groups C, D; T4

Class I, Zone 0, AEx ia IIB T4

12. **Description of Equipment:**

**General** - The FG-OD Smart Sensing Cable is designed for the detection of liquid hydrocarbons and non-conductive solvents. A microprocessor embedded in each FG-OD sense cable allows independent digital transmission to the alarm unit located in an unclassified location. Leak location can be determined on each section length. The FG-OD Smart Sensing Cable is a smart cable is supplied in fixed lengths of 3 m, 7 m, 12 m, and 20 m each with pre-connected male/female connectors.

**Ratings** - The FG-OD Smart Sensing Cables operate at 12-28 Vdc (6W). The FG-OD are rated for use in an ambient temperature range of -30 °C to +100 °C. The FG-OD are rated for use in a process temperature range of -30 °C to +100 °C.

**FG-ODa Smart Sensing Cable**

IS/I /1/ CD/ T4 -30 °C < Ta < 100 °C; Entity – 160405

I/O/AEx ia IIB /T4 -30 °C < Ta < 70 °C; Entity – 160405

$U_i \leq 10 \text{ Vdc}$ ;  $I_i \leq 200 \text{ mA}$ ;  $P_i \leq 500 \text{ mW}$ ;  $C_i \leq 0.2 \mu\text{F}$ ;  $L_i/R_i \leq 29 \mu\text{H}/\Omega$

a = Cable length; 3, 7, 12, 20 or Lxxy

Where xx = length yy = number of sections

13. **Specific Conditions of Use:**

The FG-OD shall be terminated only using the FG-TM-OD end of line terminator.

14. **Test and Assessment Procedure and Conditions:**

This Certificate has been issued in accordance with FM Approvals US Certification Requirements.

15. **Schedule Drawings**

A copy of the technical documentation has been kept by FM Approvals.

16. **Certificate History**

Details of the supplements to this certificate are described below:

Date	Description
14 <sup>th</sup> November 2016	Original Issue.

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Member of the FM Global Group

US Certificate Of Conformity No: FM16US0031X

Date	Description
19 <sup>th</sup> December, 2016	<u>Supplement 1:</u> Description of the Change: Correction of typographical error in the certificate number.

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