



ENGINEERING SAFETY CONSULTANTS

The Global Provider of Functional Safety Expertise and Technical Consultancy

Certificate of Conformity to IEC 61508 / IEC 61511 Safety Integrity Level (SIL) 2

Functional Safety of Safety-Related Programmable Electronic Systems

Manufacturer: Tyco Fire & Security GmbH (TFSG)
Victor Von Bruns-Strasse 21
8212 Neuhausen am Rheinfall
Schaffhausen
Switzerland

The **TFSG, 801PHEX I.S. Optical Smoke + Heat Detector** (function of this module is to provide detection modes of smoke and heat in an intrinsically safe environment) has been assessed and is considered capable for use in a low demand Safety Function up to SIL 2 with regard to systematic capability (assessed under the Prior Use route), random failure rate and architectural constraint.

The assessment was based on the assumptions, data provided, and recommendations given in:

- **Engineering Safety Consultants Ltd Report: D152_SV007 rev.4, which includes details associated with the Safety Manual requirements in Appendix C;**
- **Engineering Safety Consultants Ltd Report: D152_PU001 rev.3;**
- **Renewal Letter from Tyco Fire & Security GmbH, signed by Deepika Sahni, Principal Regulatory Engineer, Dated 8th April 2021.**

The assessment was carried out against failure modes where the detector was unable to detect an alarm condition and process alarms over the addressable system.

The assessment was carried out to determine compliance with IEC 61508 (2010 Edition) with regards to:

- Random Hardware Failure with Predicted PFD <3.0E-03 (assuming a 1 year proof test interval and average repair time of 168 hrs);
- Architectural Constraint (Type B, SFF >90%, <99%);
- Systematic Capability against IEC 61511 (2016 Edition) Prior Use.

IMPORTANT: It should be noted that this assessment does not include confirmation of the response time of the devices. For response times (along with any relevant assumptions) reference should be made to the Safety Manual of each device and the total SIF response time **MUST** be compared against the process safety time for the specific application.

Managing Director: Simon Burwood
Member of IEC 61508 (MT61808-1-2) & IEC 61511 (MT61511) Maintenance Committees
Assessment Date: April 2015
Renewal Date: April 2021, valid to April 2023
Certificate: D152_CT007 rev. 7

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