



# ENGINEERING SAFETY CONSULTANTS

*The Global Provider of Functional Safety Expertise and Technical Consultancy*

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

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### **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, 801CHEX I.S. Carbon Monoxide + Heat Detector** (function of this module is to provide detection modes of carbon monoxide 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 (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:

- **ESC Ltd report D152\_SV005 rev.3, which includes details associated with the Safety Manual requirements in Appendix C;**
- **ESC Ltd report D152\_PU001 rev.2;**
- **Renewal Letter from Tyco Fire & Security GmbH, signed by Deepika Sahni, Regulatory Engineer, Dated 29<sup>th</sup> April 2019.**

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 with regards to:

- Random Hardware Failure with Predicted PFD <3.0E-03 (assuming a 1 year proof test and average repair time of 168 hrs);
- Architectural Constraint (Type B, SFF >90%, <99%);
- Systematic Capability against IEC 61511 (2004 Edition) Prior Use.

Managing Director: Kenneth G L Simpson  
Member of the IEC 61508 committee  
Assessment Date: April 2015  
Renewal Date: April 2019, valid to April 2021  
Certificate: D152\_CT005 rev. 5

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