



## ENGINEERING SAFETY CONSULTANTS

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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 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\_SV005 rev.3, 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 8<sup>th</sup> 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\_CT005 rev. 6

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