



# ENGINEERING SAFETY CONSULTANTS

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

## IEC 61508 Safety Integrity Level Capability Certificate

### **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, CPU801** has been assessed and is considered capable for use in a low demand Safety Function up to (and including) SIL 2 with regards to systematic capability (assessed under the Prior Use route), random hardware failures and architectural constraints in conjunction with the **T2000, MX & ZX Fire Panel**.

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

- **Technis Report No. T432, Issue 4.0;**
- **Engineering Safety Consultants Ltd Report: D152\_SV008 rev.5, which includes details associated with the Safety Manual requirements in Appendix B;**
- **Engineering Safety Consultants Ltd Report: D152\_PU001 rev.4;**
- **Renewal Letter from Tyco Fire & Security GmbH, signed by Deepika Sahni, Principal Regulatory Engineer, Dated 27<sup>th</sup> April 2023.**

The product was assessed against the following failure modes:

- **Failure to respond (executive output);**
- **Failure to respond (audible output).**

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

- SIL 2 with a HFT = 0 via Route 1<sub>H</sub>;
- Architectural Constraint (Type B, SFF >90% - <99%);
- Systematic Capability against IEC 61508 (2010 Edition) via Route 2<sub>S</sub>.

Device	$\lambda_{DU}$ (/hr)	$\lambda_{DD}$ (/hr)	$\lambda_S$ (/hr)	SFF (%)	Device Type	Estimated SIL Capability
CPU801	1.1E-07	2.6E-06	1.2E-10	94	B	SIL 2

Note 1: The SIL of a complete SIF (sensor, logic solver and final element subsystems) must be verified to calculate the required PFD / PFH, considering any redundancy, Proof Test Interval (PTI), Proof Test Coverage (PTC), Mission Time and Mean Time To Restoration (MTTR) for all elements included in the SIF. Each subsystem should be verified to ensure compliance with the minimum HFT requirements.

**IMPORTANT:** It should be noted that this assessment does not include confirmation of the response time of the device. 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  
Assessment Date: April 2015  
Renewal Date: April 2023, valid to April 2025  
Certificate: D152\_CT008 rev. 8

### ENGINEERING SAFETY CONSULTANTS LTD

2nd Floor, Exchequer Court, 33 St. Mary Axe,  
London, EC3A 8AA UK

Telephone/Fax: +44 (0)20 8542 2807

E-Mail: [info@esc.uk.net](mailto:info@esc.uk.net) Web: [www.esc.uk.net](http://www.esc.uk.net)

Registered in England and Wales: 7006868

Registered Office: 33 St. Mary Axe, London EC3A 8AA