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

The **NSC Ltd, Fire Alarm Control Panel** has been assessed and is considered capable for use in a low demand Safety Function of up to (and including) SIL 2 with regards to systematic, random hardware failures and architectural constraints.

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

- **Engineering Safety Consultants Ltd Report: F177_FM001 rev. 5.**

The product was assessed against the following failure mode:

- **Ability to provide an audible / visual annunciation locally (or to remote connected devices) upon a fire condition detected by the field fire detection devices.**

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_H;
- Architectural Constraint (Type B, SFF >90% - <99%), HFT = 0 with or without the use of the Remote Unit;
- Systematic Capability of SC 2.

Device	λ_{DU} (/hr)	λ_{DD} (/hr)	λ_S (/hr)	SFF (%)	Device Type	Estimated SIL Capability
Solution F1 Fire Alarm Control Panel (Version A – Using Remote Unit)	4.8E-07	6.3E-06	2.3E-07	93%	B	SIL 2
Solution F1 Fire Alarm Control Panel (Version A – Without Remote Unit)	6.3E-07	6.1E-06	2.3E-07	91%	B	SIL 2
Solution F1 Fire Alarm Control Panel (Version B – With Remote Unit)	5.1E-07	6.5E-06	2.3E-07	93%	B	SIL 2
Solution F1 Fire Alarm Control Panel (Version B – Without Remote Unit)	6.6E-07	6.4E-06	2.3E-07	91%	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.

It should be noted that the SIL capability of any remote units used in conjunction with the Solution F1 Fire Alarm Control Panel are not covered within this certificate.

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
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Renewal Date: March 2023, valid to March 2025
Certificate: F177_CT001 rev. 3

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