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IEC 61508 Functional Safety Capability Statement

NSC Ltd, Solution F1 Fire Alarm Control Panel

Manufacturer:	NSC Ltd Grete-Hermann-Str. 6, 33758 Schloß Holte-Stukenbrock, Germany
Product:	Fire Alarm Control Panel
Model:	Solution F1
Application:	Low Demand Mode Safety Instrumented Function
Safety Function:	Upon failure to provide an audible / visual annunciation locally (or to remote connected device) when a fire condition is detected by a field fire detection device, action is initiated (Sensing, Logic and final element subsystems not part of this analysis)
Applied standard:	IEC 61508 Ed2 2010 Parts 1-3 & IEC 61511 Ed1
Systematic Capability:	Suitable up to SIL 2
Applicable report:	ERM Report: F177_FM001 rev. 7
Assessment Route:	1_H
Hardware Fault Tolerance:	0
Type:	B
Application restrictions:	None

Model No.	λDU (/hr)	λDD (/hr)	λS (/hr)	SFF	SIL AC (HFT = 0)	SIL SC
Solution F1 Fire Alarm Control Panel (Version A – Using Remote Unit)	4.8E-07	6.3E-06	2.3E-07	93%	SIL 2	SC 2
Solution F1 Fire Alarm Control Panel (Version A – Without Remote Unit)	6.3E-07	6.1E-06	2.3E-07	91%	SIL 2	SC 2
Solution F1 Fire Alarm Control Panel (Version B – With Remote Unit)	5.1E-07	6.5E-06	2.3E-07	93%	SIL 2	SC 2
Solution F1 Fire Alarm Control Panel (Version B – Without Remote Unit)	6.6E-07	6.4E-06	2.3E-07	91%	SIL 2	SC 2

SIL AC (Architectural Constraints): Represents the maximum allowable SIL of each hardware element, assuming Hardware Fault Tolerance (HFT) = 0.

SIL SC (Systematic Capability): A measure of confidence (expressed on a scale of SC 1 to SC 4) of the confidence that the systematic safety integrity of a device meets the requirements of the specified SIL.

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It should be noted that for a device to meet a specified SIL, SIL AC and SIL SC of the device needs to both be met. In addition to this, the required Probability of Failure on Demand (PFD) value for the complete Safety Instrumented Function (SIF) needs to adhere to the SIL PFDavg ranges.

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.

IMPORTANT: It should be noted that this assessment considers only the NSC Ltd Solution F1 Fire Alarm Control Panel and does not include confirmation of the response time of the device(s).

The NSC Ltd Solution F1 Fire Alarm Control Panel has been assessed and is considered capable for use in a low demand mode safety function up to (and including) SIL 2 with regards to random hardware failures, architectural constraints and Systematic Capability.

Note 1: The SIL of a complete SIF (sensor, logic solver and final element subsystems) must be verified to calculate the required PFD / Probability of Failure per Hour (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.

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