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IEC 61508 Functional Safety Capability Statement

Apollo Fire Detectors Ltd, Marine Negative Isolator and Marine Isolating Base

Manufacturer:	Apollo Fire Detectors Ltd 36 Brookside Rd, Havant PO9 1JR
Product:	Marine Negative Isolator and Marine Isolating Base
Model:	45681-286mar, 55000-721mar

Application:	Low Demand Mode Safety Instrumented Function
Safety Function:	Refer to ERM report
Applied standard:	IEC 61508 Ed2 2010 Parts 1-3 & IEC 61511 Ed1
Systematic Capability:	Suitable up to SIL 2
Applicable report:	Environmental Resources Management Ltd Report: E046_PU002 rev. 7

Assessment Route:	1_H
Hardware Fault Tolerance:	0
Type:	B
Application restrictions:	The certified devices can only achieve SIL 2 if used in conjunction with a fire alarm control panel that supports all elements of the Apollo protocol, including full fault diagnostic Safety Manual for each product covered by this document should provide a reference to the ERM assessment report

Model No.	λDU (/hr)	λDD (/hr)	λS (/hr)	SFF	SIL AC (HFT = 0)	SIL SC
55000-721mar Marine Negative Isolator	2.6E-09	7.9E-08	0.0E+00	97%	SIL 2	SC 2
45681-286mar Marine Isolating Base	5.8E-09	8.2E-08	0.0E+00	93%	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.

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

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IMPORTANT: It should be noted that this assessment considers only the Apollo Fire Detectors Ltd, Marine Negative Isolator and Marine Isolating Base. It does not cover opening and closing time requirements and a random hardware failures assessment must be conducted for the entire safety function for each application as per the appropriate Safety Requirements Specification.

The Apollo Fire Detectors Ltd, Marine Negative Isolator and Marine Isolating Base have been assessed and are 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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