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IEC 61508 Hardware Safety Integrity Assessment

Apollo Fire Detectors Ltd, Relay Interface Unit

Manufacturer:	Apollo Fire Detectors Ltd 36 Brookside Rd, Havant PO9 1JR
Product:	Relay Interface Unit
Model:	55000 – 847CD
Application:	Low Demand Mode Safety Instrumented Function
Safety Function:	Refer to Technis report
Applied standard:	IEC 61508 Ed2 2010 Parts 1-3 (Partial)
Systematic Capability:	Not Assessed
Applicable report:	Technis Report No. T617 Issue 3.0
Assessment Route:	1_H
Hardware Fault Tolerance:	0
Type:	B
Application restrictions:	The certified device can only achieve SIL 1 if used in conjunction with a fire alarm control panel that supports all elements of the Apollo protocol, including full fault diagnostic Product covered by this document should carry the applicable Technis report number

Model No.	λDU (/hr)	λDD (/hr)	λS (/hr)	SFF	SIL AC (HFT = 0)
55000–847CD SIL Relay Interface Unit with feedback function	3.2E-08	1.4E-07	2.0E-08	84%	SIL 1

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

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.

IMPORTANT: It should be noted that this assessment considers only the Apollo Fire Detectors Ltd, Relay Interface Unit. 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, Relay Interface Unit has been assessed and is considered capable for use in a low demand mode safety function up to (and including) SIL 1 with regards to random hardware failures and architectural constraints.

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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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