



Certificate of Conformity to IEC 61508 / IEC 61511 Safety Integrity Level (SIL) 2

Functional Safety of Safety-Related Programmable Electronic Systems

The **Apollo Fire Detectors Ltd, Fire Detectors** have been assessed and are considered capable for use in a low demand Safety Function up to SIL 2, in terms of random failure rate, architectural constraints and systematic capability.

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

- **Technis Report No. T595 Issue 2.0;**
- **Engineering Safety Consultants Ltd (ESC) Report: E046_PU001 rev. 6;**
- **Renewal Letter from Apollo Fire Detection Ltd, signed by Chris Ellis, Head of Compliance, dated 22nd September 2020.**

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.

The Safety Manual for each product covered by this certificate should provide a reference to the ESC assessment report: E046_PU001 rev. 6.

The assessment was carried out to determine compliance with regards to:

- Probability of Failure on Demand (PFD) with a proof test interval (T_p) of one year, a proof test coverage (PTC) of 95% or 100%, an Overhaul Interval of 10 years and a repair time of a detected failure of 24 hours against IEC 61508 (2010 Edition) and IEC 61511 (2016 Edition);
- Architectural Constraints (SFF) for Type B equipment against IEC 61508 (2010 Edition);
- Systematic Capability against IEC 61511 (2016 Edition), prior use, suitable up to SIL 2.

Products Assessed	PFD ($T_p = 1$ year, PTC = 100%)	PFD ($T_p = 1$ year, PTC = 95%)	SFF
55000 - 440apo XP95 I.S Heat Detector	3.9E-06	4.8E-06	90% to < 99%
55000 - 540apo XP95 I.S Ionisation Smoke Detector	3.9E-06	4.9E-06	90% to < 99%
55000 - 640apo XP95 I.S Optical Smoke Detector	1.2E-05	1.7E-05	90% to < 99%

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
Member of IEC 61508 (MT61808-1-2) & IEC 61511 (MT61511) Maintenance Committees
Assessment Date: May 2016
Renewal Date: October 2020, valid to October 2022
Certificate: E046_CT002 rev. 8

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