



ENGINEERING SAFETY CONSULTANTS

The Global Provider of Functional Safety Expertise and Technical Consultancy

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 capabilities.

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

- **Technis Report No. T595 Issue 2.0;**
- **ESC Ltd Report: E046_PU001 rev. 5;**
- **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.

Products covered by this certificate should have the Technis and ESC reports referred to in the Safety Manual.

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

- Probability of Failure on Demand (PFD) with proof test interval of one year 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	SFF
55000 - 440apo XP95 I.S Heat Detector	5.5E-06	90% to < 99%
55000 - 540apo XP95 I.S Ionisation Smoke Detector	5.6E-06	90% to < 99%
55000 - 640apo XP95 I.S Optical Smoke Detector	1.4E-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.

Chairman: Kenneth G L Simpson
Member of the IEC 61508 committee
Assessment Date: May 2016

Renewal Date: October 2020, valid to October 2022
Certificate: E046_CT002 rev. 7

ENGINEERING SAFETY CONSULTANTS LTD
is ISO9001-certified by Global Group, itself a
UKAS-accredited ISO9001 certification
body

Reg: 12Q12086

ENGINEERING SAFETY CONSULTANTS LTD
Tuition House
27-37 St George's Road Wimbledon London SW19 4EU UK
Telephone/Fax: +44 (0)20 8542 2807
E-Mail: info@esc.uk.net Web: www.esc.uk.net
Registered in England and Wales: 7006868
Registered Office: 27-37 St George's Road Wimbledon London SW19 4EU