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## Certificate of Conformity to IEC 61508 Safety Integrity Level (SIL) 2 in Terms of Random Hardware Performance and Systematic Requirements

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### ***Functional Safety of Safety-Related Programmable Electronic Systems***

The OEM '**Shield**' range of fire detectors have been assessed and are considered capable for use in a SIL 2 low demand Safety Function. The assessment was based on the assumptions, data provided and recommendations given in:

- Technis Report No. T663 Issue 1.1;
- Technis Report No. T595 Issue 2.0;
- Technis Report No. T617 Issue 2.0;
- Technis Report No. T618 Issue 3.0 – See Appendix 1 for results;
- Technis Report No. T594 Issue 3.0;
- Technis Report No. T662 Issue 1.2;
- Technis Report No. T616 Issue 2.0;
- Engineering Safety Consultants Ltd (ESC) Prior Use Assessment Report G009\_PU001 rev. 4;
- Renewal letter from Apollo, signed by Scott Meredith, Conformance and Regulations Lead, dated 27<sup>th</sup> October 2020.

This certificate is applicable to the following devices:

- SIL-A7011;
- SIL-A8012 (see note 2) ;
- SIL-A8011 (see note 2);
- SIL-A9099;
- SIL-A6061 (see note 1);
- SIL-A8063;
- SIL-A8022;
- SIL-A8021;
- SIL-A8023;
- SIL-A7023;
- SIL-A7033.

The certified devices can only achieve SIL 2 if used in conjunction with a fire alarm control panel that supports all elements of the OEM protocol including full fault diagnostics.

The Safety Manual for each product covered by this certificate should provide a reference to the ESC assessment report: G009\_PU001 rev. 4.

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 and IEC 61511;
- Architectural Constraints (SFF) for Type B equipment against IEC 61508;
- Systematic Capability against IEC 61511, prior use, suitable up to SIL 2.

Products Assessed	PFD	SFF
SIL-A7011 SIL Indoor Manual Call Point with Isolator	5.0E-05	90% to < 99%
SIL-A7033 SIL I.S Manual Call Point	5.1E-05	90% to < 99%
SIL-A8063 SIL Shield Sounder Visual Indicator with Isolator	6.1E-05	90% to < 99%
SIL-A8022 SIL Heat Detector	3.2E-05	90% to < 99%
SIL-A8021 SIL Optical Detector	4.3E-05	90% to < 99%
SIL-A8023 SIL Multisensor Detector	4.5E-05	90% to < 99%
SIL-A8012 SIL I.S Heat Detector (see Note 2)	5.5E-06	90% to < 99%
SIL-A8011 SIL I.S Optical Detector (see Note 2)	1.4E-05	90% to < 99%
SIL-A9099 SIL Shield Protocol Translator (Single)	1.1E-05	90% to < 99%
SIL-A7023 SIL Waterproof Manual Call Point with Isolator	5.0E-05	90% to < 99%
SIL-A6061 SIL Input Output Unit with Isolator (See Note 1)	1.5E-04	60% to < 90%

Note 1: The following devices can achieve only SIL 1 if used in a simplex configuration or SIL 2 if two are used in a duplex configuration, the two interfaces units are configured so that any output command is sent to both interface units and either working will operate the required output device.

Note 2: The listed devices are only to be used with the SIL-A8085 base to maintain the I.S. classification.

**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.



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Assessment Date: April 2017  
Renewal Date: October 2020, valid to October 2022  
Certificate: G009\_CT001 rev. 7

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