



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

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

The **Linesense Fire Detection Ltd, Digital Location Interface (52100-003/Z/G)**, has been assessed and is considered capable for use in a low demand Safety Function up to SIL 2 with regard to random failure rate and architectural constraint.

The function of the 52100-003/Z/G is to monitor a length of LHDC for both fire condition and fault statuses (open circuit). The unit can be configured to operate in a two-wire mode that emulates the operation of conventional heat detectors and can therefore be directly interfaced with fire control panels by connection to fire zone trigger circuits or addressable interfaces.

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

- ESC Ltd Report: H033\_FM002 rev. 2.

The product was assessed against the following failure mode:

- A fault causing a failure of the fire detection unit to identify a genuine high temperature alarm.

The system assessed comprises the following modules:

- 52100-003 Module;
- Linear Heat Detecting Cable (LHDC):
  - 51100-068 Model H8040N Digital LHDC. Alarm temperature 68°C, max ambient 45°C. Black nylon outer sheath;
  - 51100-085 Model H8045N Digital LHDC. Alarm temperature 85°C, max ambient 45°C. Black nylon outer sheath;
  - 51100-105 Model H8028 Digital LHDC. Alarm temperature 105°C, max ambient 70°C. Black PVC outer sheath;
  - 51100-176 Model H8069 Digital LHDC. Alarm temperature 176°C, max ambient 105°C. Red PVC outer sheath;
  - 51100-240 Model H9650 Digital LHDC. Alarm temperature 240°C, max ambient 200°C. White fluoropolymer outer sheath.

It should be noted also that this certificate is applicable to the 52100-003-Z and 52100-003-G, with the letter prefix at the end indicating that these devices are to be used to monitor a hazardous environment from a safe area via zener barrier or a galvanic barrier.

This FMEA analysis has been conducted on the listed device manufactured by Linesense Fire Detection Ltd and not on any external equipment (i.e. the zener / galvanic barriers). Therefore, it is recommended that any external equipment to be used with the Linesense Fire Detection Ltd 52100-003/Z/G for hazardous areas must be assessed with regards to its suitability for use as a Safety Function with these devices.

The assessment was carried out to determine compliance with IEC 61508 with regards to:

- Random Hardware Failure (Predicted failure rate <2.0E-04 per year);
- Architectural Constraint (Type A, SFF >90 <99%).

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