



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 **PATOL Ltd LDM-519-DIM Digital Linear Heat Detector Interface** has been assessed and is considered capable for use in a SIL 2 low demand Safety Function with regard to random failure rates. The assessment was based on the assumptions, data provided and recommendations given in:

- ESC Ltd report C074_SV001_(2.0).

The system was assessed against the following failure mode:

- The unit fails to provide an alarm from either of the two alarm relays (A1, A2) when there is a high temperature at the sensing element.

The system assessed comprises the following modules:

- LDM-519-DIM module (Part No. 700-441).
- Linear heat detecting cable:
 - 700-070 – Digital Linear Heat Detection Cable (LHDC). Alarm temperature 70°C, max ambient 45°C. Black Nylon outer sheath.
 - 700-090 – Digital Linear Heat Detection Cable (LHDC). Alarm temperature 90°C, max ambient 70°C. Black Nylon outer sheath.
 - 700-071 – Digital Linear Heat Detection Cable (LHDC). Alarm temperature 70°C, max ambient 45°C. Black Nylon outer sheath with Stainless Steel outer braid armour.
 - 700-091 – Digital Linear Heat Detection Cable (LHDC). Alarm temperature 90°C, max ambient 70°C. Black Nylon outer sheath with Stainless Steel outer braid armour.

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

- Random Hardware Failures (Predicted PFD <3.7E-04 (assuming a 1 year proof test and average repair time of 168 hrs.).)
- Architectural Constraints (Type A, SFF >60 <90%).

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