



## ENGINEERING SAFETY CONSULTANTS

*The Global Provider of Functional Safety Expertise and Technical Consultancy*

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

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

The **Patol Ltd, Digital Linear Heat Detection Interface LDM-519-DIM-28** has been assessed and based on the information provided and assumptions given in the report, is considered capable for use in a low demand Safety Function up to SIL 2.

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

- Random Hardware Failure (Predicted PFD per year is 3.7E-04) with a Mean Down Time (MDT) of 168 hours, a Proof Test Interval (PTI) of 1 year (8760 hours);
- Architectural Constraint (Type A, SFF 60-<90%).

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

- **ESC Ltd Report: K155\_FM001 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:

- LDM-519-DIM module (Part No. 700-442);
- Linear heat detecting cable:
  - 700-070LS0H Digital LHDC. Standard 70°C max switching temperature.
  - 700-071LS0H Digital LHDC. As above, but with additional exterior stainless-steel wire over braid, referred to as "Armoured" Digital LHDC.
  - 700-090LS0H Digital LHDC. Standard 90°C max switching temperature.
  - 700-091LS0H Digital LHDC. Armoured version.
  - 700-070 Digital LHDC. Standard 70°C max switching temperature.
  - 700-071 Digital LHDC. As above, but with additional exterior stainless-steel wire over braid, referred to as "Armoured" Digital LHDC.
  - 700-090 Digital LHDC. Standard 90°C max switching temperature.
  - 700-091 Digital LHDC. Armoured version.
  - 700-140 Digital LHDC. Standard 140°C max switching temperature.
  - 700-141 Digital LHDC. Armoured version.
  - 700-180 Digital LHDC. Standard 180°C max switching temperature.
  - 700-181 Digital LHDC. Armoured version.

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UKAS-accredited ISO9001 certification  
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It should be noted that the FMEA analysis conducted on the LDM-519-DIM-28 is also applicable to LDM-519-DIM-28-Z and LDM-519-DIM-28-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 Patol Ltd equipment only 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 Patol Ltd LDM-519-DIM-28-Z/G for hazardous areas must be assessed with regards to its suitability for use as a Safety Function with these devices.

**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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Member of the IEC 61511 Maintenance Committee (MT61511)  
Assessment Date: November 2020, valid to November 2022  
Certificate: K155\_CT001 rev. 2

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