

# IEC 61508 Hardware Safety Integrity Assessment

## LGM Products Signaline FT LocatorPlus (SLP-001/CSSIGLP001) and Signaline LocatorPlus-EN (P/N SLP-002/CSSIGLP002)

Manufacturer: LGM Products  
 Unit 3, Quantum Business Park, Beacon Hill Road, Fleet, GU52 8EA, UK  
 Product: Linear Heat Detector  
 Model: SLP-001/ CSSIGLP001, P/N SLP-002/ CSSIGLP002

Application: Low Demand Mode Safety Instrumented Function  
 Safety Function: Upon detection of a fault causing a failure of the SLP-001/ CSSIGLP001 or P/N SLP-002/ CSSIGLP002 and its ability to detect and identify a genuine fire condition using a Linear Heat Detection Cable (LHDC), action is initiated (Additional sensing, logic solver and final element subsystems not part of this analysis)  
 Applied standard: IEC 61508 Ed2 2010 Parts 1-3 (Partial)  
 Systematic Capability: Not Assessed  
 Applicable report: Environmental Resources Management Ltd Report: F125\_FM003 rev. 1

Assessment Route: 1H  
 Hardware Fault Tolerance: 0  
 Type: B  
 Application restrictions: None

Model No.	$\lambda_{DU}$ (/hr)	$\lambda_{DD}$ (/hr)	$\lambda_S$ (/hr)	SFF	SIL AC (HFT = 0)
Signaline FT LocatorPlus (SLP-001/ CSSIGLP001)	2.9E-08	2.5E-07	7.3E-08	92%	SIL 2
Signaline LocatorPlus-EN (P/N SLP-002/ CSSIGLP002)	2.7E-08	2.2E-07	7.3E-08	92%	SIL 2

**SIL AC (Architectural Constraints):** Represents the maximum allowable SIL of each hardware element, assuming Hardware Fault Tolerance (HFT) = 0.

It should be noted that for a device to claim compliance with a specified SIL, the SIL AC and SC of the device needs to both be met. In addition to this, the required Average Probability of Failure on Demand (PFDavg) value for the complete Safety Instrumented Function (SIF) needs to adhere to the SIL PFDavg ranges.

**IMPORTANT:** It should be noted that this assessment considers only the LGM Products Signaline FT LocatorPlus (SLP-001/ CSSIGLP001) and Signaline LocatorPlus-EN (P/N SLP-002/ CSSIGLP002) and does not include confirmation of the response time of the device(s).

The LGM Products Signaline FT LocatorPlus (SLP-001/ CSSIGLP001) and Signaline LocatorPlus-EN (P/N SLP-002/ CSSIGLP002) have been assessed and are considered capable for use in a low demand mode safety function up to (and including) SIL 2 with regards to random hardware failures and architectural constraints.

Note 1: The SIL of a complete SIF (sensor, logic solver and final element subsystems) must be verified to calculate the required Probability of Failure on Demand (PFD) / Probability of Failure per Hour (PFH), considering any redundancy, Proof Test Interval (PTI), Proof Test Coverage (PTC), Mission Time and Mean Time To Restoration (MTTR) for all elements included in the SIF. Each subsystem should be verified to ensure compliance with the minimum HFT requirements.



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