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IEC 61508 Functional Safety Capability Statement

Fabrication Application Réalisation Electronique (FARE), LYNX Range

Manufacturer:	Fabrication Application Réalisation Electronique (FARE) ZA de la Guillotine, rue Duhamel du Monceau, 45300 Dadonville, France
Product:	Detectors
Model:	Development References: LYNX-DM, LYNX-ETC, LYNX-T2OI, LYNX-2O, LYNX-S2H, LYNX-DM-IP, LYNX-MT, Commercial References: LDMA-SIL2, LDMA-NUC, PT-CPAR-SIL2, PT-CPAR-NUC, ETCL-B-SIL2, ETCL-SIL2, ETCL-B-NUC, ETCL-NUC, PT-IOM-B-SIL2, PT-IOM-SIL2, PT-IOM-B-NUC, PT-IOM-NUC, LOTAI-SIL2, LOTAI-NUC, PT-OTAI-SIL2, PT-OTAI-NUC, LOA-NUC, LOA-SIL2, PT-OA-NUC, PT-OA-SIL2, LS2H-NUC, LS2H-SIL2, PT-T2AD-NUC, PT-T2AD-SIL2, LDMA-IP-SIL2, PT-CPAR-WP-SIL2, ETCLT-B-SIL2, PT-SLM-SIL2

Application:	Low Demand Mode Safety Instrumented Function
Safety Function:	LYNX-DM: Failure to provide an indication of a fire alarm LYNX-ETC: Failure to provide digital protocol to communicate between analogue and digital interfaces and transmit a valid alarm indication when required LYNX-T2OI: Failure to detect smoke / heat and initiate a digital alarm signal LYNX-2O: Failure to detect smoke and initiate a digital alarm signal LYNX-S2H: Failure to detect smoke and initiate a digital alarm signal LYNX-DM-IP: Failure to provide an indication of a fire alarm LYNX-MT: Failure to provide digital protocol to communicate between analogue and digital interfaces and transmit a valid alarm indication when required (Logic solver and final element subsystems not part of this analysis)
Applied standard:	IEC 61508 Ed2 2010 Parts 1-3 & IEC 61511 Ed1
Systematic Capability:	Suitable up to SIL 2
Applicable report:	Environmental Resources Management Ltd Report: G025_FM001 rev. 5

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

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Model No.	λDU (/hr)	λDD (/hr)	λS (/hr)	SFF	SIL AC (HFT = 0)	SIL SC
LYNX-DM	2.2E-08	2.2E-07	8.0E-08	93%	SIL 2	SC 2
LYNX-ETC	7.3E-08	7.9E-07	6.3E-08	92%	SIL 2	SC 2
LYNX-T2OI	4.4E-08	8.3E-07	0.0E+00	95%	SIL 2	SC 2
LYNX-2O	4.3E-08	8.2E-07	0.0E+00	95%	SIL 2	SC 2
LYNX-S2H	4.4E-08	8.3E-07	0.0E+00	95%	SIL 2	SC 2
LYNX-DM-IP	1.2E-08	2.2E-07	0.0E+00	95%	SIL 2	SC 2
LYNX-MT	5.1E-08	9.5E-07	0.0E+00	95%	SIL 2	SC 2

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

SIL SC (Systematic Capability): A measure of confidence (expressed on a scale of SC 1 to SC 4) of the confidence that the systematic safety integrity of a device meets the requirements of the specified SIL.

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 Fabrication Application Réalisation Electronique (FARE), LYNX Range. It does not cover opening and closing time requirements and a random hardware failures assessment must be conducted for the entire safety function for each application as per the appropriate Safety Requirements Specification.

The Fabrication Application Réalisation Electronique (FARE), LYNX Range has been assessed and is considered capable for use in a low demand mode safety function up to (and including) SIL 2 with regards to random hardware failures, architectural constraints and systematic capability.

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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