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CERTIFICATE of RELIABILITY and FUNCTIONAL SAFETY

This is to certify that

The GNExS1. GNExS2, STExS1, STExS2, STExC1X05, STExC1X10, D1xS1, D1xS2, D1xC1X05, D1xC1X10, D1xC2X05, D1xC2X10, A112N, AL112NX, AL112NH, A121, AL121X, AL121H, MA1, MA2, D2xS2 range of Sounders and Sounder/Beacon Combinations provided by European Safety Systems, Impress House, Mansell Road, London W3 7QH UK has been assessed and is considered **highly** suitable for use in a low demand safety function:

- **As an unvoted item (ie hardware fault tolerance of 0) at SIL 2**
- **As an unvoted item (ie HFT[0]) highly robust claim at SIL 1**

This claim is in respect of random hardware failures and systematic failures. The assessment was based on the assumptions, proven-in-use data provided, and recommendations given in Technis Report T1072 (Issue 4.0). The product was assessed against the failure modes:

- **Failure to sound or annunciate**

The assessment was carried out having regard to the guidance in IEC 61508 [2010] and the related body of guidance in respect of Random Hardware Failures and Systematic Failures [route 2_H]

Integrity in respect of failure to function	**SIL2 and Robust Claim of SIL 1**
Total Failure Rate	0.48 pmh
"hazardous" failure rate (revealed)	0.42 pmh
"hazardous" failure rate (unrevealed)	0.06 pmh
"safe" failure rate (revealed)	0 pmh
"safe" failure rate (unrevealed)	0
System Type	B
Hardware Fault Tolerance	0
Diagnostic coverage	87%
PFD (hazardous failure)	2.9×10^{-4}
Proof Test Interval	**Up to 1 year**

The validity of this certificate requires that: The product is used in accordance with any assumptions, limitations or intervals stipulated in the underpinning reliability/integrity report. The product build state continues to conform to the drawings and issues quoted in the underpinning reliability/integrity report. The product is used having regard to the instructions, limitations of use, intervals etc as outlined in the manufacturer's Safety Manual. The manufacturer maintains a credible level of Functional Safety Management in respect of (for example) design configuration control, procurement, manufacturing and defect analysis. The certificate will not apply to any product variation/modification or to the use of functions not addressed in the original study. It is recommended that the design, defect records and the company FSM procedure are reviewed, at least every 2 years, and should any changes have occurred since the original certification then the manufacture should contact Technis to request re-certification. The above support a SIL 2 claim. However, Technis does not recommend SIL 2 as a realistic target for E2S clients in respect of functions involving human response.

Signed:.....(Certificate No T1072-215.4) – 15 May 2025)

Dr David J. Smith BSc,PhD,CEng,FIEE,FIQA,HonFSaRS,MIGasE

This certificate does not warrant fitness for any specific applications related purpose and is based on probabilistic and statistical assessment