TECHNIS

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CERTIFICATE of RELIABILITY and FUNCTIONAL SAFETY

This is to certify that

The below range of Sounders provided by **European Safety Systems, Impress House, Mansell Road, London W3 7QH UK.** has been assessed and is considered suitable for use in a low demand safety function:

- **As an unvoted Type B item (ie hardware fault tolerance of 0) at SIL 2**
- **As an unvoted Type B item (ie HFT[0]) a 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 T901 (Issue 3.0). The product was assessed against the failure modes:

• Failure to respond to an input by operating a sounder

The products include the following:

BExS110D	BExS110E	BExS120D	BExS120E	GNExS1
D1xS1	STExS1	GNExS2	STExS2	D1xS2
D2xS1	D2xC2X05	D2xC2X10	D2xC2XH1	D2xC2XH2
D2xC2LD2	D2xC3			

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]

Signed:.....(Certificate No T901-124.3) – 14 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

SOUNDERS

BExS110D	BExS110E	BExS120D	BExS120E	GNExS1
D1xS1	STExS1	GNExS2	STExS2	D1xS2
D2xS1	D2xC2X05	D2xC2X10	D2xC2XH1	D2xC2XH2
D2xC2LD2	D2xC3			

Integrity in respect of failure to function	SIL 2 and robust SIL1
Total Failure Rate	0.19 pmh
"hazardous" failure rate (revealed)	0.15 pmh
"hazardous" failure rate (unrevealed)	0.04 pmh
"safe" failure rate (revealed)	0 pmh
"safe" failure rate (unrevealed)	0
System Type	B
Hardware Fault Tolerance	0
Diagnostic coverage	>80%
PFD (hazardous failure)	3.2×10^{-4}
Proof Test Interval	Up to 1 year

The above supports a SIL2 claim. However, Technis does not recommend SIL2 as a realistic target for E2S clients in respect of functions involving human response

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 manufacturer should contact Technis to request re-certification.