

# FUNCTIONAL SAFETY CERTIFICATE

CERTIFICATO – ZERTIFIKAT – CERTIFICADO – CERTIFICAT

The product:

*HS-420I*  
*Intrinsically Safe Accelerometer*

Manufactured by:

*Hansford Sensors Ltd.*  
*Artisan, Hillbottom Road, Sands Industrial Estate,*  
*High Wycombe HP12 4HJ 8824*  
*UK*

suitable for the following safety function(s):

Overall vibration protection input device

has been assessed per the relevant requirements of

IEC 61508:2010 Parts 1 to 2

and meets the requirements providing the following:

## Systematic Capability:

The compliance with the requirements for the avoidance of systematic faults and the requirements for the control of systematic faults have been achieved following the compliance route 1s.

SC 3

## Hardware Safety Integrity:

The constraints on hardware safety integrity have been verified in order to achieve a sufficiently robust architecture taking into account the level of element and subsystem complexity following the compliance route 2H.

Type  
A

## Random Safety Integrity:

The estimated safety integrity, for each safety function, due to random hardware safe and dangerous failures rates (excluding "no part" and "no effect" contribution).

See  
page  
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The architectural constraints and the effects of random failures (PFH/PFD<sub>AVG</sub>) must be verified for each specific application and safety function implemented by the E/E/PE safety-related system.

Certified by:

**BYHON**

BYHON Certification Director:

*Francesco Rosati*

Rosati Francesco

CERTIFICATE No:

HANS-420VB-ENS-B01

Revision: A

Issued:

November 19th, 2024

Valid until:

November 18th, 2027

The owner of a valid certificate for an assessed product is authorized to affix the following mark and relative ID number, to all recognized devices which are identical to the product assessed.

**BYHON**  
**SIL** ✓

**ID.N°155421EN01B**



**ANSI National Accreditation Board**

**ACCREDITED**

ISO/IEC 17065

**PRODUCT CERTIFICATION  
BODY**

#8914

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The design of each Safety Instrumented Function (SIF) shall meet the requirements listed in the reference standards that shall be selected by taking into account the specific application. Specific activities necessary to investigate and reach a judgment on the adequacy of the functional safety achieved by the E/E/PE safety-related system or compliant items (elements/subsystems) has been conducted by an independent assessor.

The following failure rates data shall be used to the PFH/PFD<sub>AVG</sub> estimation, taking into consideration all parameters such as redundancy, architectural constraints, diagnostic capability, also introduced by the whole system, including the considerations about the proof test and its effectiveness, mean time of restoration, up to the maintenance capability and its minimum characteristics.

Model	$\lambda_S$	$\lambda_{DU}$	$\lambda_{DD}$
HS-420I, HS-420IT, HS-420M	37	127	184

Note:

- The diagnostic part of failure rates is present in case of out-of-range diagnostic by Logic Solver..
- All failure rates are in FIT (Failure In Time 1 FIT = 1 failure / 10<sup>9</sup> hours).
- The prescriptions contained in the safety manual QM34 issue 1 (or later) shall be followed
- The device can be used in SIL2 application with HFT=0, and in SIL 3 application with HFT=1.

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The Functional Safety  
Assessment report no.  
  
21-HAN-420VB-FSA-02

dated:  
November 13rd, 2024

is an integral part of this  
certificate



Mod\_12\_CB Rev08

BYHON  
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Prato (PO)  
ITALY

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