FUNCTIONAL SAFETY

CERTIFICATE

CERTIFICATO – ZERTIFIKAT – CERTIFICADO – CERTIFICAT

The product:

Vibration Transmitters
VT9285B & VT9285H

Manufactured by:

Shenyang Vibrotech Instruments Inc
Gate1,No.77-13,No.13 Road ,
Economic & Technical Development District, Shenyang City,

suitable for the following safety function(s):

Continuous monitoring of rotating equipment motion to detect an excessive magnitude of the velocity/acceleration/displacement prior it becomes potentially dangerous. The transmitter provides a 4-20mA signal proportional to the physical quantity measured

has been assessed per the relevant requirements of

IEC 61508:2010 Parts 1 to 3

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 1_S.	SC 2
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 1_H.	Type B
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 2

The architectural constraints and the effects of random failures (PFH/PFD_{AVG}) 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:

Rosati Francesco

CERTIFICATE No:
VIBR-V9285-ESE-A01
Revision: A

Issued:
January 17th, 2024

Valid until:
January 16th, 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° 150124ES01A

ANSI ACCREDITED
#8914
ISO/IEC 17065
Product Certification Body

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_{AVG} 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.

Device failure rates

Configuration	λ_S	λ_{DU}	λ_{DD}
VT9285B & VT9285H	196	257	2201

Note:

- All failure fates are in FIT (Failure In Time 1 FIT = 1 failure / 10^9 hours).
- The firmware version covered by this certificate is 1.7.x.
- The product is capable to be used in Safety Instrumented Systems (SIS) when properly designed into a Safety Instrumented Function (SIF) and configured according to the Safety Manual. The product is SIL 2 capable.

The prescriptions contained in the Safety Manual ZK-9285-SM shall be followed.

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The Functional Safety Assessment report no.

24-VIB-V9285-FSA-01

dated:
January 12nd, 2024

is an integral part of this certificate

Mod_12_CB Rev06

BYHON
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