FUNCTIONAL SAFETY

CERTIFICATE

CERTIFICATO – ZERTIFIKAT – CERTIFICADO – CERTIFICAT

The product:

Seismic Transmitters SW5484E

Manufactured by:

Metrix Instruments Co.
8824 Fallbrook Dr. Houston, TX 77064
United States of America

suitable for the following safety function(s):

1) Provides a 4-20mA DC signal output proportional to the vibration amplitude of rotating equipment portion where installed.
2) Provides digital outputs for configurable threshold levels.

has been assessed per the relevant requirements of

IEC 61508:2010 Parts 1 to 7

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 A/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:
MTXI-W5484-ENS-E01
Revision: A

Issued:
October 13rd, 2021

Valid until:
October 12nd, 2024

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° 010521E01S

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.

Failure rate for Seismic Transmitters SW5484E– All configurations

Configuration	Safety Function	λ_S	λ_{DU}	λ_{DD}	Type
Analog output (4-20mA)	(1)	116	110	114	A
SW5484E Digital Board (common part)	(2)	18.9	65.0	87.7	B
SW5484E Digital Board (single output relay)	(2)	13.6	16.7	0	A

Notes:

- All failure fates are in FIT (Failure In Time 1 FIT = 1 failure / 10^9 hours).
- The safety function 1) can be used for application up to SIL 2, with HFT=0;
- The safety function 2) can be used for application up to SIL 1, with HFT=0.
- Even if the output relays are used in redundancy (i.e. 1oo2), the common part must be always considered with HFT=0 (1oo1).

The prescriptions contained in the safety manual QP064-44 shall be followed.

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The Functional Safety Assessment report no.

21-MTX-W5484-FSA-01

dated:
October 13rd, 2021

is an integral part of this certificate

Mod_12_CB Rev03

BYHON
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