FUNCTIONAL SAFETY

CERTIFICATE

CERTIFICATO – ZERTIFIKAT – CERTIFICADO – CERTIFICAT

CERTIFICATE No:
MTXI-20334-ENS-B01
Revision: A

Issued:
October 17th, 2023

Valid until:
October 16th, 2026

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°010523ES01A

The product:

Digital Proximity System MX2033 and MX2034
(all configurations)

Manufactured by:

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

suitable for the following safety function(s):

Programmable multiple measurement of safety parameters to rotating machinery.

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

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 MX2033

Configuration	λ_{SU}	λ_{SD}	λ_{DU}	λ_{DD}	λ_{RES}
ALL CONFIGURATION	0	0	595	1210	452

Failure rate for MX2034

Configuration	λ_{SU}	λ_{SD}	λ_{DU}	λ_{DD}	λ_{RES}
ALL CONFIGURATION	0	0	644	1349	455

Notes:

1. The firmware releases covered by the present certificate are:
   - 1353.10.XX for the MX2033
   - 1354.20.XX for the MX2034
2. The prescriptions contained in the safety manual QP064-42 shall be followed.
3. The devices can be used in SIL 1 applications with HFT=0, and SIL 2 applications with HFT=1.

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The Functional Safety Assessment report no.

23-MTX-20334-FSA-01

dated:
October 16th, 2023

is an integral part of this certificate

Mod_12_CB Rev05

BYHON
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