

CERTIFICATE

No. 8604715



In compliance with requirements for SIL Verification according to the International Standards and Conformity Assessment for all electrical, electronic and related technologies, this certificate applies to the products listed below:

MAGNETIC FLOW METER: LD Series

Random Capability: Type B Element

Systematic Integrity: SIL 2 @ HFT= 0;Route 1H;Systematic Capability: SC 2 (SIL 2 Capable)

Probability of Failure on Demand: Low Demand 1oo1:3.1E-04,High Demand 1oo1:3.6E-08(1/h),SFF=93.4%

Report No.: No.8604715

Specific requirements: LD series is a flowmeter used to measure the volume of gas and liquid vapor, with 4~20mA output

Applied Codes & Standards: IEC 61508 Parts 1-7:2010

produced by or for



Dandong Top Electronics Instrument (Group) CO.,LTD.
NO.10,Huanghai Street,Zhenxing District, Dandong, P.R. China

and produced in the manufacturing plant(s)

Dandong Top Electronics Instrument (Group) CO.,LTD.

NO.10,Huanghai Street,Zhenxing District, Dandong, P.R. China

The Annex is an integral part of this certificate.


This certificate attests that all provisions of the described in relevant parts of the standard

IEC 61508:2010

SIL are addressed in the accompanying technical file.

The certificate has been issued on **08 January 2025** and is valid until **07 January 2030** and will remain valid as long as the test methods and/or factory production control requirements included in the international standard/standards, used to assess the performances of the declared essential characteristics, do not change, and the product, and the manufacturing conditions in the plant are not modified significantly, unless suspended or withdrawn by the product certification body. The initial certification date of issue is 12 December 2024.

Prague, 08 January 2025


Ing. Lukáš Turza, Ph.D, IWE
Deputy Head of CB



validity code: **9EACBE63-DDA**

Check the validity of this certificate using this code at www.ll-c.info

LL-C (Certification) Czech Republic a.s. | Pobřežní 620/3, 186 00 Praha 8

Annex to certificate

No. 8604715



Dandong Top Electronics Instrument (Group) CO.,LTD.

NO.10,Huanghai Street,Zhenxing District Dandong

VAT: 912106001201514601

Standard

IEC 61508:2010

Product type & Assessment Report reference

Product type	Assessment Report reference
MAGNETIC FLOW METER	No.8604715

Disclaimer

The use of the product must obey the required rules to conservation of SIL properties. These rules are recalled in the §6 of the Assessment Report reference.

Product version of hardware components used for validation and type tests

Component	Model
MAGNETIC FLOW METER	LD Series

Environmental constraints

Document of reference	Remark
EN IEC 61326-1:2021	These elements must be checked for each integration operation of the product

SIL - capable certified Safety Instrumented Function

Product	Safety Instrumented Function (1)	Safety Instrumented Function (2)	Safety Instrumented Function (3)
MAGNETIC FLOW METER	SF1: protected control circuit	N/A	N/A
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Calculation Hypothesis for architecture

Component architecture	SIL Capability	Demand frequency	PFD
1oo1	SIL2	Low	3.1E-04
1oo1	SIL2	High	3.6E-08(1/h)

Calculation Hypothesis for safety

Safety function	Failure rate	Undetected dangerous failure rate	Tests intervals	MTTR
SF1	$\lambda_{SD}=0(\text{FIT}), \lambda_{SU}=329(\text{FIT})$	$\lambda_{DU}=36(\text{FIT}), \lambda_{DD}=186(\text{FIT})$	12 months	8h

Disclaimer

The Safety Integrated Level of the safety function using the product shall be calculated taking into account the characteristics of the whole system

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Approved by


Printed by

THIS ANNEX IS NOT VALID WITHOUT MAIN CERTIFICATE

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