

# SIL



## Functional Safety Certificate

**No. 1N191227.DTEWT38**

Technical Construction File no. SIL-WSKBYG892

**Certificate's Holder:** Dandong Top Electronics Instrument Group Co., Ltd.  
 No.10, Huanghai Street, Zhenxing District, Dandong City, Liaoning Province, China.

**Product:** Electromagnetic Flowmeter  
**Model(s):** LD Series

**Standard:** Has been assessed per the relevant requirements of:  
 IEC 61508:2010 Parts 1-7  
 And meets requirements providing a level of integrity to:  
 Systematic Capability: SC 3 (SIL 3 Capable)  
 Random Capability: Type B Element  
 SIL 2 @ HFT= 0; SIL 3@ HFT=1; Route 2H  
 PFD<sub>AVG</sub> and Architecture Constraints must be verified each application.

\* Safety Function:  
 Electromagnetic Flowmeter based on the principle of electromagnetic induction, measuring the flow of conductive fluid according to the electromotive force induced by the conductive fluid through an external magnetic field.

\* Is suitable to be safety function according to the description and the configuration defined in Annex I.

**Verification Mark:**



The Verification Mark can be affixed on the product. It is NOT permitted to alter the Verification Mark in any way

**Remark:** This SIL Verification of Compliance has been issued on a voluntary basis. ECM confirms that a Test Report is existent for the above listed product(s) and found to meet the requirements of above standards for application in safety related system up to Safety Level of **SIL 3**.

The unit must be properly designed into a Safety Instrument Function as per the requirements in the Safety Manual. The Verification Mark shown above can be affixed on the product. It is NOT permitted to alter the Verification Mark in any way. In addition the Verification's Holder is NOT allowed to transfer the Verification to third parties. This certificate can be checked for validity at [www.entecerma.it](http://www.entecerma.it)

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**Expiry date 29 December 2024**

**Chief Manager  
 Marco Morino**

**Deputy Manager  
 Amanda Payne**

**Ente Certificazione Macchine**

Via Cà Bella, 243 - 40053 Valsamoggia Loc. Castello di Serravalle (Bo) Italy  
 ☎ +39.0516705141 📠 +39.0516705156 ✉ info@entecerma.it 🌐 www.entecerma.it



# Annex I



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- The use of the product must obey the required rules to conservation of SIL3 properties. These rules are recalled in the §6 of the Assessment Report reference.
- The product version of hardware components used for validation and type tests are the following:

Component	Model
Electromagnetic Flowmeter	LD Series

- Acceptable environmental constraints for the system are stated in the safety manual. These elements must be checked for each integration of the product.
- Hypothesis used for calculations are presented here under: The mode of operation is Low demand, which means less than 1 trip demand each year;

Component architecture	SIL Capability	Demand frequency	PFD
1oo1 configuration	SIL2	Low	5.43E-04
1oo2 configuration	SIL3	Low	2.01E-05

Safety function	Failure rate	Undetected dangerous failure rate	Tests intervals	MTR
SF1	8.47E-07	1.24E-07	12months	24h
SF2	8.45E-07	1.22E-07	12months	24h

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

