

SIL



Functional Safety Certificate

No. 1N191227.DTEWT39

Technical Construction File no. SIL-WSKBYG893

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

Product: Magnetostrictive Level Transmitter
Model(s): MLT 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 2_H
 PFD_{AVG} and Architecture Constraints must be verified each application.

*** Safety Function:**

The MLT Series Magnetostrictive Level Transmitter provides a high-precision, stable and reliable level sensor for continuous level measurement of liquid medium in the tank. It has a HART protocol, and can also adjust various parameters through three buttons in the case and the LCD.

* Is suitable to be safety function according to the description and the configuration defined in Annex 1.

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

Date of issue 30 December 2019

Expiry date 29 December 2024

**Chief Manager
 Marco Morina**

**Deputy Manager
 Amanda Payne**

Ente Certificazione Macchine

Via Ca Bella, 243 - 40053 Valsamoggia Loc. Castello di Serravalle (Bo) Italy

+39.0516705141 +39.0516705156 info@entecerma.it www.entecerma.it



Annex I

No. 1N191227.DTEWT39

Technical Construction File no. SIL-WSKBYG893

1. 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.

2. The product version of hardware components used for validation and type tests are the following:

Component	Model
Magnetostrictive Level Transmitter	MLT Series

3. Acceptable environmental constraints for the system are stated in the safety manual. These elements must be checked for each integration of the product.

4. 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	4.82E-04
1oo2 configuration	SIL3	Low	2.68E-05

Safety function	Failure rate	Undetected dangerous failure rate	Tests intervals	MTR
SF1	1.20E-07	1.10E-07	12months	24h
SF2	1.18E-07	1.08E-07	12months	24h

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