



Certificate / Certificat Zertifikat / 合格証

MAG 1402065 C001

exida hereby confirms that the:

Jupiter JM4 Magnetostrictive Level Transmitter

**Magnetrol International
Aurora, IL, USA**

Has been assessed per the relevant requirements of:

IEC 61508 : 2010 Parts 1-3

and meets requirements providing a level of integrity to:

Systematic Capability: SC 2 (SIL 2 Capable)

Random Capability: Type B Element

SIL 2 @ HFT=0; SIL 3 @ HFT = 1; Route 2_H

**PFH/PFD_{avg} and Architecture Constraints
must be verified for each application**

Safety Function:

The primary safety function of the JM4 Magnetostrictive Level Transmitter shall provide continuous measurement of liquid level within the stated safety accuracy, giving a 4-20mA Output.

Application Restrictions:

The unit must be properly designed into a Safety Instrumented Function per the Safety Manual requirements.

The manufacturer
may use the mark:



Revision 1.0 June 26, 2024
Surveillance Audit Due
July 1, 2027



Valeria Motto
Evaluating Assessor

Rudolf P. Chalupa
Certifying Assessor

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Systematic Capability:

The Product has met manufacturer design process requirements of Safety Integrity Level (SIL) 2. These are intended to achieve sufficient integrity against systematic errors of design by the manufacturer.

A Safety Instrumented Function (SIF) designed with this product must not be used at a SIL level higher than stated.

Random Capability:

The SIL limit imposed by the Architectural Constraints must be met for each element. This element meets *exida* criteria for Route 2_H.

Application/Device/Configuration	λ_{SD}	λ_{SU}	λ_{DD}	λ_{DU}	#	DC
Single Float	399	137	668	92	302	93%
Dual Float	399	139	668	110	302	92%

IEC 61508 Failure Rates in FIT*

* FIT = 1 failure / 10⁹ hours

SIL Verification:

The Safety Integrity Level (SIL) of an entire Safety Instrumented Function (SIF) must be verified via a calculation of PFH/PFD_{avg} considering redundant architectures, proof test interval, proof test effectiveness, any automatic diagnostics, average repair time and the specific failure rates of all products included in the SIF. Each element must be checked to assure compliance with minimum hardware fault tolerance (HFT) requirements.

The following documents are a mandatory part of certification:

Assessment Report: MAG 14-02-065 R002 V1R0 PIU Assessment Report
Jupiter JM4 (or later)

Safety Manual: ORI-652. Jupiter JM4 SIL Manual_PROOF3



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