



# Certificate / Certificat Zertifikat / 合格証

MAG 1905028 C001

*exida* hereby confirms that the:

## Eclipse 700GWR Level Transmitter Magnetrol International, Inc. Aurora, IL - USA

The manufacturer  
may use the mark:



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<sub>H</sub>**

**PFDAVG and Architecture Constraints  
must be verified for each application**

Revision 1.0 February 25, 2020  
Surveillance Audit Due  
July 1, 2022

### Safety Function:

The Eclipse 700GWR Level Transmitter will measure level and transmit a corresponding signal within the stated safety accuracy.

### Application Restrictions:

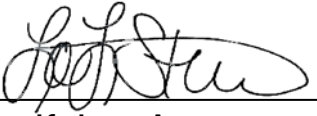
The unit must be properly designed into a Safety Instrumented Function per the Safety Manual requirements.



ISO/IEC 17065  
PRODUCT CERTIFICATION BODY  
#1004



  
Evaluating Assessor

  
Certifying Assessor

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**Systematic Capability: SC 3 (SIL 3 Capable)**

**Random Capability: Type B Element**

**SIL 2 @ HFT=0; SIL 3 @ HFT = 1; Route 2<sub>H</sub>**

**PFD<sub>AVG</sub> and Architecture Constraints  
must be verified for each application**

Eclipse 700GWR Level  
Transmitter

**Systematic Capability:**

The product has met manufacturer design process requirements of Safety Integrity Level (SIL) 3. 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<sub>H</sub>.

**IEC 61508 Failure Rates in FIT\***

Application/Device/Configuration	$\lambda_{SD}$	$\lambda_{SU}$	$\lambda_{DD}$	$\lambda_{DU}$
Model 700GWR	0	63	672	60

\* FIT = 1 failure / 10<sup>9</sup> hours

**SIL Verification:**

The Safety Integrity Level (SIL) of an entire Safety Instrumented Function (SIF) must be verified via a calculation of PFD<sub>avg</sub> 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 19-05-028 R002 V1R0 Assessment Report

**Safety Manual:**

57-661.0 Eclipse Model 700-512X-XXX SIL Certified Safety Manual IO



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