# Certificate / Certificat

# Zertifikat / 合格証

MAG 1512025 C001

*exida* hereby confirms that the:

## Eclipse 706GWR Level Transmitter

## Magnetrol International, Inc.
## Aurora, IL - USA

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 for each application**

Safety Function:
The Eclipse 706GWR 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.

exida Certification

Evaluating Assessor

Certifying Assessor

The manufacturer may use the mark:

exida CERTIFIED IEC 61508 SIL 3 CAPABLE

Revision 2.0 June 15, 2016
Surveillance Audit Due
July 1, 2019

ANSI Accredited Program
PRODUCT CERTIFICATION
#1004

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## MAG 1512025 C001

## 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 for each application**

**Eclipse 706GWR 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 device meets *exida* criteria for Route $2_H$.

### IEC 61508 Failure Rates in FIT*

| Device | $\lambda_{SD}$ | $\lambda_{SU}$ | $\lambda_{DD}$ | $\lambda_{DU}$ |
|---|---|---|---|---|
| Model 706-512*-*** | 0 | 78 | 748 | 61 |

* FIT = 1 failure / $10^9$ hours

SIL Verification:

The Safety Integrity Level (SIL) of an entire Safety Instrumented Function (SIF) must be verified via a calculation of $PFD_{AVG}$ 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 15-12-025 R002 V2 R0 IEC 61508 Assessment

Safety Manual: 57-657.0 Eclipse Model 706 SIL3 Certified Manual

64 N Main St
Sellersville, PA 18960