



Certificate / Certificat Zertifikat / 合格証

DET 12/01-022 C001

exida hereby confirms that the:

FlexSonic™ Acoustic Detector including AC100 Sensor and ATX10 Transmitter Det-Tronics Minneapolis, MN - 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 2 (SIL 2 Capable)

Random Capability: Type B Element

SIL 2 @ HFT = 0; Route 1_H

**PFD_{AVG} and Architecture Constraints
must be verified for each application**

Safety Function:

The Acoustic Detector will sense acoustic levels present and signal the 4-20mA output to indicate the potentially dangerous condition. The Acoustic Detector magnetic switches, HART, RS485, and SD card interface options are interference free.

Application Restrictions:

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

The manufacturer
may use the mark:



Valid until August 1, 2016
Revision 1.0 July 31, 2013



ANSI Accredited Program
PRODUCT CERTIFICATION
#1004



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Evaluating Assessor

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Certifying Assessor

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**FlexSonic™ Acoustic
Detector including
AC100 Sensor and
ATX10 Transmitter**

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 for each element.

IEC 61508 Failure Rates in FIT*

Model Number	λ_{SD}	λ_{SU}	λ_{DD}	λ_{DU}	SFF
Acoustic Detector Analog Output (consists of one Model AC100 Sensor and one Model ATX10 Transmitter)	0	125	1925	97	95.5%

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 subsystem must be checked to assure compliance with minimum hardware fault tolerance (HFT) requirements.

The following documents are a mandatory part of certification:

Assessment Report: DET 12-01-022 R001 V1 R1

Safety Manual: 95-8658-1.2 and later (AC100_ATX10 Safety), June 2013

* FIT = 1 failure / 10⁹ hours

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T-002, V3R2-3