Certificate / Certificat
Zertifikat / 合格証

DET 1108054 C001

exida hereby confirms that the:

X3301, X3302

Multispectrum IR Flame Detectors

Detector Electronics Corporation
Minneapolis, MN - USA

Have been assessed per the relevant requirements of:

IEC 61508 : 2010   Parts 1-3

and meet 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 Multispectrum IR Flame Detector will sense infrared emission from flame sources and signal the 4 –20 mA output or relay output to indicate the potentially dangerous condition.

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

John C Yozallinas
Evaluating Assessor

David Smith
Certifying Assessor

DET 1108054 C001

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

X3301, X3302 Multispectrum IR Flame Detectors

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.

IEC 61508 Failure Rates in FIT*

Device	λ_{SD}	λ_{SU}	λ_{DD}	λ_{DU}	SFF
X3301/X3302 Relay Output, FW Rev E and F	335	120	556	88	92.0%
X3301/X3302 0-20 mA Output, FW Rev E and F	0	106	920	75	93.2%
X3301/X3302 0-20 mA Output with HART, FW Rev E and F	0	110	1146	93	93.1%

* 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: DET 11-08-054 R003 V4 R1 and later

Safety Manual: #95-8720, Rev 2.4 and later

exida®

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T-013, V7R2