The manufacturer may use the mark:

Reports:

DET 11/06-065 R004 V1R2 IEC 61508 Assessment X2200_5200_9800

DET 11/06-064 R003 V1 R3 NUVIR FMEDA Report

Validity:

This assessment is valid for the X2200/5200/9800 Flame Detector.

This assessment is valid until January 1, 2015.

Revision 1.0 December 21, 2011

exida Certification Services

Certificate / Certificat

Zertifikat / 合格証

DET 1106065 C001

exida hereby confirms that the:

X2200/5200/9800
Flame Detectors

Detector Electronics Corporation
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 Integrity: SIL 2 Capable

Random Integrity: Type B Element

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

Safety Function:
The Flame Detectors will sense the presence of flame via UV and/or IR, and output the intensity within the Safety Accuracy on the 4 – 20 mA or relay output.

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

John C Yozallinas

Evaluating Assessor

Certifying Assessor

Certificate / Certificat / Zertifikat / 合格証

DET 1106065 C001

Systematic Integrity: SIL 2 Capable

Random Integrity: Type B Element

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

X2200/5200/9800 Flame Detectors

Detector Electronics Corporation

Minneapolis, MN - USA

SIL 2 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 without “prior use” justification by end user or diverse technology redundancy in the design.

IEC 61508 Failure Rates in FIT*

Device	λ_{SD}	λ_{SU}	λ_{DD}	λ_{DU}	SFF
X2200 UV Relay	208	78	501	72	91.6%
X2200 UV Current	0	75	704	61	92.7%
X2200 UV mA w/HART	0	67	877	73	92.8%
X5200 UV/IR Relay	248	102	591	85	91.7%
X5200 UV/IR Current	0	98	834	74	92.6%
X5200 UV/IR mA w/HART	0	90	1007	86	92.7%
X9800 IR Relay	220	95	412	79	90.2%
X9800 IR Current	0	93	628	68	91.4%
X9800 IR mA w/HART	0	84	800	80	91.7%

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.

* FIT = 1 failure / 10^9 hours

exida® Certification Services
64 N Main St
Sellersville, PA 18960

Form	Version	Date
C61508	2.7-2	Mar 2011