



The manufacturer may use the mark:



Valid until July 1, 2017
Revision 3.0 June 9, 2014

Certificate / Certificat

Zertifikat / 合格証

DET 090204 C001

exida hereby confirms that the:

Pointwatch Eclipse PIRECL

Infrared Hydrocarbon Gas Detector

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 Capability: SC 2 (SIL 2 Capable)

Random Capability: Type B Element

SIL 2 @ HFT=0; SIL 2 @ HFT = 1; Route 1_H

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

Safety Function:

The Pointwatch Eclipse IR detector will sense hydrocarbon gas and signal the 4 – 20 mA 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.



Evaluating Assessor

Certifying Assessor



ANSI Accredited Program
PRODUCT CERTIFICATION
#1004

DET 090204 C001

Systematic Capability: SC 2 (SIL 2 Capable)

Random Capability: Type B Element

SIL 1 @ HFT=0; SIL 2 @ HFT = 1; Route 1_H

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

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
Eclipse-PIRECL IR Gas Detector, Analog Output	0	46	1691	142	93.3%
Eclipse-PIRECL IR Gas Detector, Relay Output	106	222	1371	149	92.7%
Eclipse-PIRECL IR Gas Detector with UD20 Universal Display, Analog Output	0	46	1691	142	92.5%
Eclipse-PIRECL IR Gas Detector with UD20 Universal Display, Relay Output	106	222	1371	149	91.9%

* FIT = 1 failure / 10⁹ 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 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 09/02-04 R002 V2 R1

Safety Manual: 95-8630-5.1

**Pointwatch Eclipse
Infrared Hydrocarbon
Gas Detector**



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Sellersville, PA 18960