Certificate / Certificat
Zertifikat / 合格証

DET 1106064 C001

exida hereby confirms that the:

Eagle Quantum Premier (EQP) Safety System

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; Route 1_H

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

Safety Function:

The EQP Safety System detects flame, gas, smoke or other programmed hazardous condition and energizes an output per the programmed logic.

Application Restrictions:

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

The manufacturer may use the mark:

Revision 2.1 Sep 30, 2019
Surveillance Audit Due
July 1, 2022

John C Gozallinas
Evaluating Assessor

Steven H Close
Certifying Assessor

ISO/IEC 17065
PRODUCT CERTIFICATION BODY
#1004

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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

Eagle Quantum Premier (EQP) Safety System

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 (1 FIT = 1 failure / 10^9 hours)

Device	λ_{sd}	λ_{su}	λ_{dd}	λ_{du}	SFF
EQ300X – common	0	32	2175	88	96%
EQ3730EDIO – common	0	88	459	21	96.3%
EQ3730EDIO – per Input monitored for open and shorts	0	11	53	1	n/a
EQ3730EDIO – per Input monitored for open only	0	11	47	7	n/a
EQ3730EDIO – per monitored output	0	0	62	1	n/a
X3301 – Multispectrum IR Flame Detector with EQPSL comm.	0	104	1545	55	96.7%
PIRECL – Eclipse Infrared Gas Detector with EQPSL comm.	0	72	2894	147	95%
AIM – common	0	45	463	11	97.8%
AIM – per Input channel	0	0	26	4	n/a
UD10-DCU	89	43	512	80	n/a
LS2000 EQPSL	367	57	1320	59	96.7%
EQ3760ASM Smoke and Heat Module	386	191	743	56	95.9%
EQ3780HSDM High Speed Deluge Module	7761	694	3134	385	96.7%

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 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 11-06-064 R002 V2R2 or later
Safety Manual: 95-8599-10.1, or later

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