



The manufacturer may use the mark:



Valid until August 1, 2018
Revision 1.5 July 9, 2015



ANSI Accredited Program
PRODUCT CERTIFICATION
#1004

Certificate / Certificat Zertifikat / 合格証

DET 1104020 C001

exida hereby confirms that the:

Stand-alone GT3000 Toxic Gas Detector including GTX Transmitter with GTS Sensor **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 Toxic Gas Detectors will measure the concentration of the target gas and output a proportional 4-20 mA signal corresponding to a 0-100% full scale within the Safety Accuracy.

Application Restrictions:

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



John C. Yozallinas
Evaluating Assessor

[Signature]
Certifying Assessor

Certificate / Certificat / Zertifikat / 合格証

DET 1104020 C001

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Random Capability: Type B Element

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**GT3000 Toxic Gas
Detector**

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 (FIT = 1 failure / 10⁹ hours)

Device	λ_{SD}	λ_{SU}	λ_{DD}	λ_{DU}	SFF
GT3000 Analog Output with O ₂ Sensors	0	243	3123	141	96.0%
GT3000 Analog Output with H ₂ S Sensors	0	199	3136	275	92.4%
GT3000 Analog Output with H ₂ S+ Sensors	0	194	3151	271	92.5%
FlexVu™ Universal Display UD20 adder *	0	54	36	19	-

* add these FITs to any GT3000 version above when UD20 is used

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 11-04-020 R002 V1R5

Safety Manual: Doc #95-8685, Rev 3.1 and higher



64 N Main St
Sellersville, PA 18960

T-013, V3R7