The manufacturer
may use the mark:

Valid until September 1, 2017
Rev 1.0, February 16, 2016

ANSI Accredited Program
PRODUCT CERTIFICATION
#1004

Certificate / Certificat

Zertifikat / 合格証

ROS 1312032 C004

exida hereby confirms that the:

5900 Radar Level Gauge and 2410 Tank Hub
(Rosemount Tank Gauging System**)**
SIL 2 1-in-1 (1oo1) Option
With 4-20mA or K1/K2 relay

Rosemount Tank Gauging
Gothenburg, Sweden

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 3 (SIL 3 Capable)

Random Capability: Type B Element

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

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

Safety Function:
The level transmitter will de-energize a relay output(s) or set its 4-20 mA output to the safe state when exceeding any of the configured alarm limits. These functions occur within the stated accuracy and within the specified demand response time.

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

Evaluating Assessor

Certifying Assessor

Certificate / Certificat / Zertifikat / 合格証

ROS 1312032 C004

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5900 Radar Level Gauge and 2410 Tank Hub

SIL 2 1-in-1 (1oo1) Option With 4-20mA or K1/K2 relay

Systematic Capability :

The product has met manufacturer design process requirements of Safety Integrity Level (SIL) 3. 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*

SIL 2, 1-in-1, Route 1_H	λ_S	λ_{DD}	λ_{DU}	SFF
4-20 mA	719	1807	228	91.7%
K1 / K2	582	1564	203	91.4%
4-20 mA and K1/K2 combined	788	1807	264	90.8

SIL 2, 1-in-1, Route 2_H	λ_S	λ_{DD}	λ_{DU}
4-20 mA	719	1807	228
K1 / K2	582	1564	203
4-20 mA and K1/K2 combined	788	1807	264

* 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 PFH and 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: ROS 1312032 R001 V2R2

Safety Manual: #00809-0400-5100, Rev AA

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