Certificate / Certificat

Zertifikat / 合格証

ROS 061218 C001

exida hereby confirms that the:

3051S Pressure Transmitter

Software Revision 7.0 and Above

Rosemount Inc.

(an Emerson Process Management company)

Chanhassen, 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 3 (SIL 3 Capable)

Random Capability: Type B Element

SIL 2@HFT=0 SIL 3@HFT=1, Route 1_H

For models where SFF ≥ 90%

SIL 2@HFT=0 SIL 3@HFT=1, Route 2_H

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

Safety Function:
The Rosemount 3051S Pressure Transmitter will measure Pressure/Level/Flow within the stated safety accuracy.

Application Restrictions:

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

Evaluating Assessor

Certifying Assessor

The manufacturer may use the mark:

Valid until September 5, 2017.

Revision 1.8 September 5, 2014

ANSI Accredited Program
PRODUCT CERTIFICATION
#1004

Certificate / Certificat / Zertifikat / 合格証

ROS 061218 C001

Rosemount 3051S Pressure Transmitter

Systematic Capability: SC 3 (SIL 3 Capable)

Random Capability: Type B Element
SIL 2@HFT=0 SIL 3@HFT=1, Route 1_H
For models where SFF ≥ 90%

SIL 2@HFT=0 SIL 3@HFT=1, Route 2_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) 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 for each element.

IEC 61508 Failure Rates in FIT[1]

Route 1_H Table

Device	λ_{SD}	λ_{SU}	λ_{DD}	λ_{DU}	SFF
3051S 4-20mA HART Pressure Transmitter: Coplanar Differential & Coplanar Gage	0	82	274	40	90%
3051S 4-20mA HART Pressure Transmitter: Coplanar Absolute, In-line Gage & In-line Absolute	0	80	260	37	90%

Route 2_H Table[2]

Device	λ_{SD}	λ_{SU}	λ_{DD}	λ_{DU}
3051S 4-20mA HART Pressure Transmitter: Coplanar Differential & Coplanar Gage	0	82	274	40
3051S 4-20mA HART Pressure Transmitter: Coplanar Absolute, In-line Gage & In-line Absolute	0	80	260	37
3051S Flowmeter based on 1195, 405, or 485 Primaries				
3051S 4-20mA HART Flowmeter Series[3]	0	90	274	51
3051S Level Transmitter: (w/o additional Seal)				
3051S 4-20mA HART Pressure Transmitter: Coplanar Differential & Coplanar Gage	0	82	274	74
3051S Transmitter with Remote Seals[4]				

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 this certification:
Assessment Report: ROS 13/01-010 R001 V2 R1
Safety Manual: 00809-0100-4007

[1]FIT = 1 failure / 10^9 hours

[2]SFF not required for devices certified using Route 2_H data. For information detailing the Route 2_H approach as defined by IEC 61508-2, see Technical Document entitled "Route 2_H SIL Verification for Rosemount Type B Transmitters with Type A Components".

[3]Refer to ROS 13/04-008 R001 V1R0 for the Flowmeter FMEDA report for models that are excluded.

[4]Refer to the Remote Seal (ROS 1105075 R001 V1R3) FMEDA report for the additional failure rates to use when using with attached Remote Seals, or use exSILentia.

exida CERTIFICATION
64 N Main St
Sellersville, PA 18960