



Certificate / Certificat Zertifikat / 合格証

ROS 1612041 C001

exida hereby confirms that the:

Rosemount™ 3051S MultiVariable™ Transmitter

Software Revision 3 or above

Emerson Automation Solutions Shakopee, 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 2_H

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

Safety Function:

The 3051S MultiVariable™ Transmitter will measure differential pressure, static pressure and/or process temperature, and output a 4-20 mA signal reporting the direct process variable or fully compensated mass, volumetric and energy flow when operated within the environmental limits and specifications stated within the product manual.

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 May 6, 2020
Surveillance Audit Due
June 1, 2023



ISO/IEC 17065
PRODUCT CERTIFICATION BODY
#1004



Evaluating Assessor

Certifying Assessor

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Random Capability: Type B Element

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**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 must be met for each element. This device meets *exida* criteria for Route 2_H.

Device – Route 2 _H Table ³	λ_{SD}^1	λ_{SU}^1	λ_{DD}^1	λ_{DU}^1
3051SMV P1	0	74	902	104
3051SMV P2	0	74	642	73
3051SMV_P3, 3051SMV_P5, 3051SMV_P6	0	74	880	81
3051SMV_P4, 3051SMV_P7, 3051SMV_P8	0	74	620	50
3051SMV_M1	0	74	987	150
3051SMV_M2	0	74	727	119
3051SMV_M3	0	74	831	127
3051SMV_M4	0	74	705	95
3051SFA1, 3051SFC1, 3051SFP1 – High Trip (normal conditions) ²	0	82	987	161
3051SFA1, 3051SFC1, 3051SFP1 – Low Trip (normal conditions) ²	0	84	987	159
3051SFA2, 3051SFC2, 3051SFP2 – High Trip (normal conditions) ²	0	82	727	130
3051SFA2, 3051SFC2, 3051SFP2 – Low Trip (normal conditions) ²	0	84	727	128
3051SFA3, 3051SFC3, 3051SFP3 – High Trip (normal conditions) ²	0	82	831	138
3051SFA3, 3051SFC3, 3051SFP3 – Low Trip (normal conditions) ²	0	84	831	136
3051SFA4, 3051SFC4, 3051SFP4 – High Trip (normal conditions) ²	0	82	705	106
3051SFA4, 3051SFC4, 3051SFP4 – Low Trip (normal conditions) ²	0	84	705	104
3051SFA5, 3051SFC5, 3051SFP5 – High Trip (normal conditions) ²	0	82	902	115
3051SFA5, 3051SFC5, 3051SFP5 – Low Trip (normal conditions) ²	0	84	902	113
3051SFA6, 3051SFC6, 3051SFP6 – High Trip (normal conditions) ²	0	82	642	84
3051SFA6, 3051SFC6, 3051SFP6 – Low Trip (normal conditions) ²	0	84	642	82
3051SFA7, 3051SFC7, 3051SFP7 – High Trip (normal conditions) ²	0	82	880	92
3051SFA7, 3051SFC7, 3051SFP7 – Low Trip (normal conditions) ²	0	84	880	90
3051SMV with Remote Seals ⁴				

¹ Numeric Values are measured in FIT = 1 failure / 10⁹ hours

²Flowmeter models include:

Rosemount™ 3051SFA uses the Rosemount 485: Annubar™ Primary Element

Rosemount 3051SFC uses the Rosemount 405: Compact Conditioning Orifice Plate Primary Element

Rosemount 3051SFP uses the Rosemount 1195: Integral Orifice Primary Element

³SFF not required for devices certified using Route 2_H data. For information on 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.”

⁴For Remote Seals refer to the FMEDA Report: 1199 Remote Seal for the additional failure rates to use, or reference exSILentia

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.

Rosemount 3051S MultiVariable Transmitter

The following documents are a mandatory part of certification:

Assessment Report:

ROS 16-12-041 R001 V2 R1 (or later)

Safety Manual:

00809-0100-4803



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Sellersville, PA 18960