*exida*®

The manufacturer
may use the mark:

CERTIFIED · IEC 61508 · SIL 3 CAPABLE · exida · 
**FS**

Revision 3.3 August 16, 2024
Surveillance Audit Due
June 1, 2026

**ANAB**
**ANSI** National Accreditation Board
A C C R E D I T E D
ISO/IEC I7065
PRODUCT CERTIFICATION
BODY
#1004

# Certificate / Certificat
# Zertifikat / 合格証

## ROS 1612041 C002

*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 1-3

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$_H$ (low demand)**

**SIL 2 @ HFT=1; SIL 3 @ HFT = 1; Route 2$_H$ (high demand)**

**PFD$_{AVG}$/PFH 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.

*exida Certification*

_____
Evaluating Assessor

_____
Certifying Assessor

# Certificate / Certificat / Zertifikat / 合格証

## ROS 1612041 C002

## Systematic Capability: SC 3 (SIL 3  Capable)

## Random Capability: Type B Element

**SIL 2 @ HFT=0; SIL 3 @ HFT = 1; Route $2_H$ (low demand)**

**SIL 2 @ HFT=1; SIL 3 @ HFT = 1; Route $2_H$ (high demand)**

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

**Rosemount 3051S MultiVariable Transmitter**

**Software Revision 3 or above**

**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] | $\lambda_{SD}$[1] | $\lambda_{SU}$[1] | $\lambda_{DD}$[1] | $\lambda_{DU}$[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] | | | | |

The following documents are a mandatory part of certification:

**Assessment Report:**

ROS 16-12-041 R001 V3 R1 (or later)

**Safety Manual:**

00809-0700-4801, Rev CA

[1] Numeric Values are measured in FIT = 1 failure / $10^9$ hours

[2]Flowmeter 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

[3]SFF 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."

[4]Refer to the Remote Seal (ROS 1105075 R001 V3R1 or later) FMEDA report for the additional failure rates to use when using with attached Remote Seal(s), or use 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.

**exida®**

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T-002, V7R2