



# Certificate / Certificat Zertifikat / 合格証

PRS 2009004 C001

*exida* hereby confirms that the:

## V Series Flow Switch of Precision Sensors USA

The manufacturer  
may use the mark:



Has been assessed per the relevant requirements of:

**IEC 61508 : 2010 Parts 1-7**

**ISO 13849 : 2015**

and meets requirements providing a level of integrity to:

**Systematic Capability: SC 3 (SIL 3 Capable)  
PL e (PL e Capable)**

**Random Capability: Type A, Route 2<sub>H</sub> Device**

**PFD<sub>avg</sub> and Architecture Constraints  
must be verified for each application**

Revision 1.0 January 31, 2021  
Surveillance Audit Due  
February 1, 2024

### Safety Function:

The safety function of V Series Flow Switch is to switch when a set point is reached.

### Application Restrictions:

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



Evaluating Assessor

Certifying Assessor

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**Random Capability: Type A, Route 2<sub>H</sub> Device**

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V Series Flow Switch

**SIL 3 Capability:**

The process has met design process, testing and installation 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 following this process must not be used at a SIL level higher than stated without “prior use” justification by the end user or diverse technology redundancy in the design.

**IEC 61508 Failure Rates in FIT\***

Application	$\lambda_{SD}$	$\lambda_{SU}$	$\lambda_{DD}$	$\lambda_{DU}$
High Trip	0	23	0	68
Low Trip	0	11	0	81

\* FIT = 1 failure / 10<sup>9</sup> hours

**SIL Verification:**

The Safety Integrity Level (SIL) of an entire Safety Instrumented Function (SIF) must be verified via a calculation of PFD<sub>avg</sub> 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:** PRS 20-09-004 R002 V1 R1

**Safety Manual:** SAFETY MANUAL V SERIES 12721

