



The manufacturer
may use the mark:



Revision 1.0 March 30, 2017
Surveillance Audit Due
April 1, 2020



ANSI Accredited Program
PRODUCT CERTIFICATION
#1004

Certificate / Certificat Zertifikat / 合格証

EVA 1604156 C001

exida hereby confirms that the:

TEC2000 with TEC2 Electronics (SIL Option)

**Emerson Process Management
Valve Automation, Inc.
Houston, TX 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 A Element

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

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

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

Safety Function:

The TEC2000 with TEC2 Electronics (SIL Option SIM board), will close to trip, open to trip or stay put to trip on application of a safety input signal.

Application Restrictions:

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



John C. Yozallinas
Evaluating Assessor

David L. Smith
Certifying Assessor

EVA 1604156 C001

Systematic Capability: SC 3 (SIL 3 Capable)**Random Capability: Type A Element****SIL 2 @ HFT=0; SIL 3 @ HFT = 1; Route 1_H****SIL 2 @ HFT=0; SIL 3 @ HFT = 1; Route 2_H****PFH, PFD_{AVG} and Architecture Constraints
must be verified for each application****TEC2000 with
TEC2 Electronics
(SIL Option)****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.

IEC 61508 Failure Rates in FIT*

TEC2000 Output Type	λ_{SD}	λ_{SU}	λ_{DD}	λ_{DU}	SFF#
Close to Trip w/PVST	1	192	1200	566	71.1%
Open to Trip w/PVST	1	192	1200	566	71.1%
Stayput to Trip w/PVST	758	230	585	350	81.8%

* FIT = 1 failure / 10⁹ hours

SFF only used for Route 1_H

SIL Verification:

The Safety Integrity Level (SIL) of an entire Safety Instrumented Function (SIF) must be verified via a calculation of PFH or 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.

The following documents are a mandatory part of certification:

Assessment Report: EVA 16-04-156 R002 V1R1

Safety Manual: VA-DC-000-1115-Safety Manual, v.09 or later



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