



The manufacturer may use the mark:



Valid until December 1, 2017
Revision 1.0 November 25, 2014



ANSI Accredited Program
PRODUCT CERTIFICATION
#1004

Certificate / Certificat Zertifikat / 合格証

ASC 1409018 C001

exida hereby confirms that the:

Stainless Steel Redundant Control System

ASCO Numatics

Florham Park, NJ - 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, Route 2_H Device

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

Safety Function:

The Redundant Control System will move to the safe state, normally open or normally closed, within the specified safety time when de-energized.

Application Restrictions:

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



Evaluating Assessor

Certifying Assessor

**Stainless Steel
Redundant Control
System**

Certificate / Certificat / Zertifikat / 合格証

ASC 1409018 C001

Systematic Capability: SC 3 (SIL 3 Capable)

Random Capability: Type A, Route 2_H Device

**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.

IEC 61508 Failure Rates in FIT*

Failure Rates Redundant Control System with Automated Diagnostic Tests

Device	λ_{SD}	λ_{SU}	λ_{DD}	λ_{DU}
Solenoid Valve	195 FIT	18 FIT	281 FIT	9 FIT
Bypass Valve	57 FIT	88 FIT	7 FIT	0 FIT
Pressure Switch	444 FIT	5 FIT	0 FIT	0 FIT

Failure Rates Redundant Control System with Manually Initiated Diagnostic Tests

Device	λ_{SD}	λ_{SU}	λ_{DD}	λ_{DU}
Solenoid Valve	0 FIT	213 FIT	0 FIT	290 FIT
Bypass Valve	0 FIT	145 FIT	0 FIT	7 FIT
Pressure Switch	0 FIT	449 FIT	0 FIT	0 FIT

* FIT = 1 failure / 10⁹ hours

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 certification:

Assessment Report: ASC 14-09-018 R002 V1R1 SS RCS IEC 61508 Assessment

Safety Manual: SM V9535



64 N Main St
Sellersville, PA 18960

T-061, V1R3-3