



Certificate / Certificat Zertifikat / 合格証

ASC 1205106 C001

exida hereby confirms that the:

Redundant Control System

ASCO, L.P.

Florham Park, NJ - USA

The manufacturer
may use the mark:



Have 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

**PFH/PFD_{avg} and Architecture Constraints
must be verified for each application**

Revision 1.3 July 31, 2018

Surveillance Audit Due
November 1, 2018

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.



ANSI Accredited Program
ISO/IEC 17065
PRODUCT CERTIFICATION BODY
#1004



Evaluating Assessor

Certifying Assessor

ASC 1205106 C001

Systematic Capability: SC 3 (SIL 3 Capable)

Random Capability: Type A, Route 2_H Device

PFH/PFD_{avg} and Architecture Constraints must be verified for each application

Systematic Capability :

These product haves 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 FIT¹

RCS Components with Automated Diagnostic Tests	λ_{SD}	λ_{SU}	λ_{DD}	λ_{DU}
Solenoid Valve	594	7	502	10
Bypass Valve	57	1	7	0
Pressure Switch	0	0	0	0

RCS Components with Manually Initiated Diagnostic Tests	λ_{SD}	λ_{SU}	λ_{DD}	λ_{DU}
Solenoid Valve	0	601	0	512
Bypass Valve	0	58	0	7
Pressure Switch	0	0	0	0

¹ 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 PFH/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: ASC 12-05-106 R001 V1R3 (or later)

Safety Manual: I&M V 9535 R3 (or later)

Redundant Control System



80 N Main St
Sellersville, PA 18960