Certificate / Certificat
Zertifikat / 合格証

EAS 1606010 C001

exida hereby confirms that the:

CB/CBA/CBB/CBA300 Series Scotch Yoke Actuators

Valve Automation
Emerson Automation Solutions

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 actuator will move the actuator/valve combination to the designed safe position within the specified safety time.

Application Restrictions:

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

_____
Evaluating Assessor

_____
Certifying Assessor

The manufacturer may use the mark:

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

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EAS 1606010 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

CB/CBA/CBB/CBA300 Series Scotch Yoke Actuators

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*

Application	λ_{SD}	λ_{SU}	λ_{DD}	λ_{DU}
Spring Return	0	168	0	354
Double Acting	0	0	0	500

* FIT = 1 failure / 10^9 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 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: EAS 16/06-010 R003 V4R1

Safety Manual: ES 47 Rev D or later

exida®

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T-061, V5R2