Certificate / Certificat
Zertifikat / 合格証

VEGA 100981C P0011 C002

exida hereby confirms that the:

VEGACAP 60 Level Switch
Output R,T, Z

VEGA Grieshaber KG
Schiltach - Germany

Has been assessed per the relevant requirements of:

IEC 61508 : 2000 Parts 1-7

and meets requirements providing a level of integrity to:

Systematic Capability: SC 3 (SIL 3 Capable)

Random Capability: Type B Element

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

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

Safety Function:
The VEGACAP 60 will de-energize its output (R & T) or set current (Z) to fail-safe output when the level goes above (or below) the trip point within the stated safety accuracy.

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:

Revision 2.0 February 24, 2015

ANSI Accredited Program
PRODUCT CERTIFICATION
#1004

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Random Capability: Type B Element

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

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

VEGACAP 60
Level Switch

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.

Versions:

	Type	Application	Electronics
V1.1	VEGACAP 60 R	MIN detection	SB1221 SB1226 SB1236 SB1237
V1.2	VEGACAP 60 R	MAX detection	
V2.1	VEGACAP 60 T	MIN detection	SB1223 SB1226 SB1236 SB1237
V2.2	VEGACAP 60 T	MAX detection	
V3.1	VEGACAP 60 Z	MIN detection	SB1235 SB1226 SB1236 SB1237
V3.2	VEGACAP 60 Z	MAX detection	

Model	**Fail-Safe state**	**λ_{SD}**	**λ_{SU}**	**λ_{DD}**	**λ_{DU}**
R Max / High trip	Out De-energized	0	438	116	54
R Min / Low trip	Out De-energized	0	440	116	52
T Max / High trip	Out De-energized	0	395	115	35
T Min / Low trip	Out De-energized	0	397	115	33
Z Max / High trip	Out > 13 mA	38	245	130	35
Z Min / Low trip	Out < 11 mA	69	241	98	40

All failure rates are given in FIT (failures / 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: VEGA 05/05-36 R013 V1R3

Safety Manuals: VEGACAP 60:
R: 31814 T: 31815 Z: 31813

64 N Main St
Sellersville, PA 18960