



The manufacturer may use the mark:



Revision 1.1 August 31, 2018
Surveillance Audit Due
September 5, 2020



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

Certificate / Certificat Zertifikat / 合格証

GEO 1607097 C001

exida hereby confirms that the:

S760 Trip Manifold Assembly

**GE Oil & Gas
Longmont, CO - 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

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

Safety Function:

The Trip Manifold Assembly will connect the supply header to the drain header 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

S760 Trip Manifold Assembly

Certificate / Certificat / Zertifikat / 合格証

GEO 1607097 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:

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*

S760 Trip Manifold Assembly components, S760BB and S760BBRP Versions, No Online Testing

Component	λ_{SD}	λ_{SU}	λ_{DD}	λ_{DU}
Electronic Trip Device				
Solenoid (1 per ETD)	0	381	0	336
Dump Valve (2 per ETD)	0	148	0	207
Stop Valve (2 per ETD)	0	0	0	116
Relay (1 per ETD)	0	0	0	141
ETD Total	0	676	0	1121
Check Valves	0	122	0	138

* FIT = 1 failure / 10⁹ hours

† PVST = Partial Valve Stroke Test of a final element Device

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: GEO 16-07-097 R002 V1R2 (or later)

Safety Manual (User Manual): GECS10004, GECS10005, GECS10007, SIL 3 GECS Adendum



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T-062, V3R1