Certificate / Certificat
Zertifikat / 合格証

EMM 0804067 C001

exida hereby confirms that the:

Micro Motion 1700/2700 Coriolis Flowmeter with Standard 700 Core
Emerson
Boulder, CO - USA

Has been assessed per the relevant requirements of:

IEC 61508 : 2010   Parts 1-3

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

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

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

Safety Function:

The Micro Motion 1700 / 2700 Coriolis Flowmeter will measure flow and / or density 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

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Systematic Capability: SC 3 (SIL 3 Capable)

Random Capability: Type B Element

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

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

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

1700/2700 Coriolis Flowmeter Series with Standard 700 Core

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 element meets *exida* criteria for Route 2_H.

IEC 61508 Failure Rates in FIT[1]

Device	λ_{SD}	λ_{SU}	λ_{DD}	λ_{DU}	SFF
Sensor Models: Elite, T, F, H, R or DT with 1700 output codes A or D, and 2700 output codes A, B, C or D	0	187	1898	173	92.3%

[1] 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: EMM 08-04-67 R005 V4R1 (or later)

Safety Manual: 20004482, Rev BB (or later)

80 N Main St
Sellersville, PA 18960