



The manufacturer
may use the mark:



Revision 7.2 July 14, 2025
Surveillance Audit Due
July 31, 2026



Certificate / Certificat

Zertifikat / 合格証

YEC 1411026 C001

exida hereby confirms that the:

ROTAMASS Total Insight Coriolis Mass Flow and Density Meter

Yokogawa Electric Corporation

Musashino-shi, Tokyo – Japan

Rota Yokogawa GmbH & Co. KG

Wehr, Germany

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

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

Safety Function:

The ROTAMASS Total Insight Coriolis Mass Flow and Density Meter is a four wire, 4-20 mA smart device which detects Mass Flow and Density. It contains self-diagnostics and is programmed to send its output to a specified failure state upon internal detection of a failure.

Application Restrictions:

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



Kiyoshi Takai
Evaluating Assessor

[Signature]
Certifying Assessor

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Random Capability: Type B Element

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ROTAMASS
Total Insight
Coriolis Mass Flow
and Density Meter

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.

IEC 61508 Failure Rates in FIT*

Device/Configuration	λ_{SD}	λ_{SU}	λ_{DD}	λ_{DU}	SFF
ROTAMASS TI Non-IS version	–	565	4,781	466	92.0%
ROTAMASS TI IS version	–	563	4,760	466	92.0%

* 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 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 subsystem must be checked to assure compliance with minimum hardware fault tolerance (HFT) requirements.

The following documents are a mandatory part of certification:

Assessment Report: YEC 14-11-026 R001 V7R3 or later

Safety Manual: IM01U10D00-00EN-R 10th Edition or later



80 N Main St
Sellersville, PA 18960