



The manufacturer
may use the mark:



Valid until July 1, 2021
Revision 2.2 June 28, 2018



ANSI Accredited Program
PRODUCT CERTIFICATION
#1004

Certificate / Certificat

Zertifikat / 合格証

YEC 1110046 C002

exida hereby confirms that the:

EJX Differential Pressure and Pressure Transmitter A Series and J Series

**Yokogawa Electric Corporation
Musashino-shi, Tokyo, Japan**

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 B Element

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

For models where $SFF \geq 90\%$

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 EJX Differential Pressure and Pressure Transmitter will measure pressure and output a 4-20 mA signal within the stated safety accuracy.

Application Restrictions:

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



Kiyoshi Takai
Evaluating Assessor

John C. Yozallinas
Certifying Assessor

**Yokogawa EJX
Differential Pressure
and
Pressure Transmitter
A Series and J Series**



64 N Main St
Sellersville, PA 18960

T-002, V3R8

Certificate / Certificat / Zertifikat / 合格証

YEC 1110046 C002

Systematic Capability: SC 3 (SIL 3 Capable)

Random Capability: Type B Element

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

For models where SFF ≥ 90%

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

**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*

| Device | λ_{SD} | λ_{SU} | λ_{DD} | λ_{DU} | SFF ¹ |
|--|----------------|----------------|----------------|----------------|------------------|
| EJX Differential Pressure and Pressure Transmitter, A Series and J Series, without Remote Seals ² | 0 | 55 | 338 | 36 | 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 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: YEC 11-10-046 R004 V2R2

Safety Manual: IM01C25T01-06EN or IM01C25T03-01E, 6th ed. and above

¹ SFF is not required for devices certified using Route 2_H data. For information detailing the Route 2_H approach, refer to IEC 61508-2.

² Refer to the FMEDA Report (YEC 11/10-046 R001 V2R4) for the additional failure rates that apply when using the transmitter with attached Remote Seals.