



Certificate / Certificat Zertifikat / 合格証

ROS 1612041 C001

exida hereby confirms that the:

248 4-20 mA HART Temperature Transmitter

**Emerson Rosemount
Shakopee, MN - 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 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:

Emerson Rosemount's 248 Temperature Transmitter will transmit a 4-20 mA signal, proportional to a measured temperature, within the safety accuracy and other stated performance specifications, when operated within the environmental limits in the product manual.

Application Restrictions:

The unit must be properly designed into a Safety Instrumented Function per the Safety Manual requirements. Extended ambient operating temperature range options¹ must be specified in the model code, along with option code QT, for this certificate to remain valid across the extended ambient temperature limits.

The manufacturer may use the mark:



Revision 2.0 May 27, 2022
Surveillance Audit Due
June 1, 2025



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****PFD_{avg} and Architecture Constraints
must be verified for each application**248 Temperature
Transmitter**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 ^{2, 3}

Application/Device/Configuration	λ_{SD}	λ_{SU}	λ_{DD}	λ_{DU}
248 RTD	0	44	327	31
248 TC	0	44	322	37

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: ROS 16-12-041 R002 V2R0 (or later)
Safety Manual: 00809-0100-4825



80 N Main St
Sellersville, PA 18960

¹ BR5 and BR6 must be ordered with option code QT for this certificate to be valid below -50 °C (BR5) or below -60 °C (BR6).

² FIT = 1 / 10⁹ hours

³ The 248 can be configured with an RTD or Thermocouple sensor. The failure rates of the 248 vary with sensor configuration and corresponding device configuration parameters. See the FMEDA Report for details to calculate the failure rates based on the configuration.