



# 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<sub>H</sub>**

**PFD<sub>avg</sub> 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 options<sup>1</sup> must be specified in the model code, along with option code QT, for this certificate to remain valid across the extended ambient temperature limits.



  
Evaluating Assessor

  
Certifying Assessor

The manufacturer  
may use the mark:



Revision 1.0 May 19, 2019  
Surveillance Audit Due  
June 1, 2022



ISO/IEC 17065  
PRODUCT CERTIFICATION BODY  
#1004

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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<sub>H</sub>**

**PFD<sub>avg</sub> and Architecture Constraints  
must be verified for each application**

**Systematic Capability:**

The Product has met manufacturer design process requirements of Safety Integrity Level (SIL) 2. 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 <sup>2, 3</sup>**

Application/Device/Configuration	$\lambda_{SD}$	$\lambda_{SU}$	$\lambda_{DD}$	$\lambda_{DU}$
248 RTD	0	58	353	37
248 TC	0	58	346	43

**SIL Verification:**

The Safety Integrity Level (SIL) of an entire Safety Instrumented Function (SIF) must be verified via a calculation of PFD<sub>avg</sub> 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 V1R0 (or later)  
**Safety Manual:** 00809-0100-4825



80 N Main St  
Sellersville, PA 18960

<sup>1</sup> 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).

<sup>2</sup> FIT = 1 / 10<sup>9</sup> hours

<sup>3</sup> 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.