



Certificate / Certificat Zertifikat / 合格証

ROS 2107076 P002 C001

exida hereby confirms that the:

**248R*QT*RK, 644R*QT*RK, 644T*QT*RK
Temperature Transmitters**

Product Version V01.xx.xx

**Rosemount Inc
Shakopee, MN - USA**

Have 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

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

Safety Function:

The 248R*QT*RK, 644R*QT*RK and 644T*QT*RK Temperature Transmitters convert various sensor input signals from hazardous areas to a 4-20 mA current output signal with a safety accuracy of $\pm 2\%$.

Application Restrictions:

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




Evaluating Assessor


Certifying Assessor

The manufacturer may use the mark:



Revision 1.0 Aug 20, 2021
Surveillance Audit Due
August 31, 2024



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248R*QT*RK
644R*QT*RK
644T*QT*RK
Temperature
Transmitters

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*

| 248R*QT*RK, 644R*QT*RK, 644T*QT*RK | λ_{safe} | λ_{DD} | λ_{DU} |
|------------------------------------|------------------|----------------|----------------|
| Single sensor configuration | 0 | 452 | 28 |
| Dual sensor configuration | 0 | 472 | 34 |
| Redundant sensor configuration | 0 | 495 | 23 |

* 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 PFH/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 21-07-076-C R001 V1R0 Assessment 248 644 RK

Safety Manual: 00809-0300-4825, Rev AA, 00809-0600-4728, Rev AA



80 N Main St
Sellersville, PA 18960