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Report

on the

Certificate

Z10 088989 0054 Rev. 00

of the

Safety Controller
AM261

Applicant

Texas Instruments Incorporated

12500, TI Boulevard
Dallas TX 75243
USA

Report No.: TD105218C

Version 1.0 of 2025-07-09

Testing Laboratory for Safety Components

TÜV SÜD Rail GmbH

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Certification Body

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Modification History

Rev.	Status	Date	Author	Modification / Description
1.0	Active	2025-07-09	Silvia (Siyun) Zou	Initial

Table 1: Modification history

1 Target of Evaluation (ToE)

In October 2023 Texas Instruments Incorporated requested TÜV SÜD Rail GmbH to test and certify the AM261 according to the standard listed in clause 4 of this report. The related project number is 717528981.

The ToE is a product used in safety related applications. The AM261 is a Safety Controller approved for

- Up to SIL 3 for Hardware integrity and systematic capability according to IEC 61508.
- Up to ASIL D for Hardware integrity and systematic capability according to ISO 26262.

The certification of the AM261 only covers the hardware – any software is excluded.

2 Scope of Testing

2.1 Test Specimen

The AM261 MCU families designed to meet the complex real-time processing needs of next generation industrial and automotive embedded products. With scalable Arm Cortex® R5F performance and an extensive set of peripherals, AM261x device is designed for a broad range of applications while offering safety features and optimized peripherals for real time control.

2.2 Nomenclature and Identification of AM261

The AM261 tested is identified by hardware as follows:

Orderable Part #	Package	Target Application	Silicon
AM2612ALDFHMZCZRQ1	nFBGA (324 pin)	Automotive, Industrial	1.0
AM2612AOFFHIZFGR	nFBGA (304 pin)	Industrial	

Table 2: HW Identification of AM261

3 Certification Requirements

The certification of the AM261 is according to the regulations and standards listed in clause 4 of this document. This certifies the successful completion of the following test segments.

I. Functional Safety including

- Functional safety management (FSM) and safety lifecycle
- Applied safety development process
- Avoidance of systematic faults / systematic capability
- Hardware Safety Requirements (including assumptions of use)
- Analysis of the device structure (IP/Element FMAs)
- Quantitative analysis of the hardware (FMEDA)
- Fault injection and simulation
- Dependent Failure Analysis (DFA)
- Criteria for coexistence of elements
- Hardware functional test and design verification
- Hardware qualification
- Software tool evaluation and qualification

II. Safety information in the product documentation (safety manual, user manual, installation and operating instructions)

III. Product-Related Quality Assurance in Manufacture and Product Development

3.1 Certification Documentation

The detailed technical evaluation is documented in the most recent version of the Technical Report:

Document No.	Description	Project No.
TD105217T	Technical Report	717528981
Safety related requirements, conditions and restrictions can be found in the following user documentation		
SFFSAE3_AM261_ Safety_Manual.pdf	Safety Manual / Installation Manual	717528981

Table 3: Technical Report

Based on the specified purpose of use of the AM261 in safety critical process applications, the certification is based on the set of standards listed in clause 4 of this document. The issuance of the certificate states compliance with these references unless specifically noted otherwise.

4 Standards and Guidelines

The regulations and guidelines which form the basis of the type testing are listed below.

4.1 Functional Safety

No.	Reference	Description
/N1/	IEC 61508-1:2010 EN 61508-1:2010	Functional safety of electrical/electronic/programmable electronic safety-related systems Part 1: General requirements
/N2/	IEC 61508-2:2010 EN 61508-2:2010	Functional safety of electrical/electronic/programmable electronic safety-related systems Part 2: Requirements for electrical/electronic/ programmable electronic safety-related systems
/N3/	ISO 26262-2:2018	Road vehicles - Functional safety Part 2: Management of functional safety
/N4/	ISO 26262-5:2018	Road vehicles - Functional safety Part 5: Product development at the hardware level
/N5/	ISO 26262-7:2018	Road vehicles - Functional safety Part 7: Production and operation
/N6/	ISO 26262-8:2018	Road vehicles - Functional safety Part 8: Supporting processes
/N7/	ISO 26262-9:2018	Road vehicles - Functional safety Part 9: Automotive Safety Integrity Level (ASIL)-oriented and safety-oriented analyses

Table 4: Basic safety standards

4.2 Safety Information in the Product Documentation (safety manual, operating instructions, labelling)

No.	Reference	Description
/N8/	IEC 61508-2:2010 EN 61508-2:2010	Functional safety of electrical/electronic/programmable electronic safety-related systems Part 2: Requirements for electrical/electronic/programmable electronic safety-related systems

Table 5: Safety information standards

4.3 Quality Management System

No.	Reference	Description
[M1]	QMS	Quality Management System TÜV SÜD Rail GmbH
	TR_RA_P_04.50	Test Program Functional Safety & Cybersecurity TR_RA_P_04.51 Definition Scope of testing TR_RA_P_04.52 Concept Phase & Safety Lifecycle TR_RA_P_04.53 Detail Phase Hardware TR_RA_P_04.54 Detail Phase Software TR_RA_P_04.55 Safety Manual TR_RA_P_04.56 Result of Testing
[M2]	D-PL-11190-08-00	DAkkS accreditation according to DIN EN ISO 17025:2018 / EN ISO/IEC 17025:2017

Table 6: Quality Management System

5 Results

5.1 Functional Safety

The tests performed and quality assurance measures implemented by the Texas Instruments Incorporated have shown that the AM261 complies with the testing criteria specified in clause 4 subject to the conditions defined in clause 6 and is suitable for safety-related use in applications up to

- SIL 3 for Hardware integrity and systematic capability in accordance with IEC 61508.
- ASIL D for Hardware integrity and systematic capability according to ISO 26262.

6 Implementation Conditions and Restrictions

The use of the AM261 shall comply with the current version of the safety parts of the user manual, and the following implementation and installation requirements have to be followed, if the AM261 is used in safety-related installations.

- The guidelines and requirements specified in the user documentation shall be followed. Only modules certified for safety-related operation shall be used for safety-critical functions. Especially the requirements of the system integration section of the safety manual have to be regarded.

- The impact on the overall safety concept and the safety function has to be well understood and analysed if a safety mechanism described in the safety manual is not used.

- All safety mechanisms implemented by the system integrator have to be developed and verified according to the targeted safety standards.

- All specific characteristics and behaviours of the AM261 required by the final safety function have to be developed and verified according to the targeted safety standards. This includes also timing aspects like reaction times, test intervals or test execution times.

- The system integrator has to understand the conditions and restrictions defined in the documentation of the AM261.

7 Certificate Number

This report specifies technical details and implementation conditions required for the application of AM261 to the certificate:

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Technical Certifier

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