CERTIFICATE NO FS/71/220/23/1190

ZERTIFIKAT NR.:

LICENCE HOLDER
GENEHMIGUNGSINHABER

Rokae (Shandong) Robotics Technology Co., Ltd.
No. 888 Huarun Rd., Zoucheng, Jining, Shandong, China

MANUFACTURING PLANT
FERTIGUNGSSTÄTTE

Rokae (Shandong) Robotics Technology Co., Ltd.
No. 888 Huarun Rd., Zoucheng, Jining, Shandong, China

PROJECT NO/-ID
PROJEKT-NR/-ID

U2MS

LICENSED TEST MARK
GENEHMIGTES PRÜFZEICHEN

SGS TÜV SAAR FUNKTIONALE SICHERHEIT GEPRÜFT FUNCTIONAL SAFETY APPROVED

Technical REPORT NO.
TECHNISCHER BERICHT NR.

U2MS0001

Tested according to
Geprüft nach

ISO 13849-1:2015 / PL d, Category 3

Certified product(s)
Zertifizierte(s) Produkt(e)

Safety Control Module

Model(s)
Modell(e)

RSC_MAIN

Technical Data and Parameter
Technische Daten und Parameter

The product fulfill the requirements of functional safety acc. to above standards in accordance with PL d. It is designed with a hardware architecture according to Category 3.

Specific Requirements
Spezifische Anforderungen

This certificate confirms the achievement of the requirements based on the following proofs:

- Proof of systematic safety integrity for defined phases of the life cycle
- Proof of the required safety-related parameters (failure rate, $MTTF_D$, DC, CCF, CAT, PFH_D)
- Proof of the techniques and measures according to ISO 13849-1
- Proofs that processes and methods are established at the manufacturer guaranteeing that unexceptionable processes in terms of risk analysis, design, production, validation, change management and quality management comply with the safety-related standard.

Certification Body
for Functional Safety
SGS-TÜV Saar GmbH
Zertifizierungsstelle für Funktionale Sicherheit

Munich, 2023-09-11

Robert Sammer

The test mark regulation is an integral part of this certificate.
Die Prüf- und Zertifizierordnung ist integraler Bestandteil des Zertifikates.

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APPENDIX

Supplementary of Functional Safety Certificate

Summary of Safety Functions:

SF	Item & Description	PL Achieved	Response Time	$MTTF_D$ (years)	PFH_D	Safe State
SF1	Safety application configuration with DI-LOGIC-DO	PL d with Cat. 3, DC ≥ 90%	30ms	582.23	4.29×10^{-8}	Switch off and high impedance.
SF2	Safety application configuration with FSOE-LOGIC-DO	PL d with Cat. 3, DC ≥ 90%	100ms	616.96	4.29×10^{-8}	Switch off and high impedance.
SF3	Safety application configuration with DI-LOGIC-FSOE	PL d with Cat. 3, DC ≥ 90%	100ms	765.77	4.29×10^{-8}	The RSC_MAIN Safety control module stop sending information or send error information to co-robot system via FSOE.
SF4	Safety application configuration with FSOE-LOGIC-FSOE	PL d with Cat. 3, DC ≥ 90%	100ms	827.01	4.29×10^{-8}	The RSC_MAIN Safety control module stop sending information or send error information to co-robot system via FSOE.
SF5	Safety application configuration with DI-LOGIC-DO-FSOE	PL d with Cat. 3, DC ≥ 90%	100ms	582.23	4.29×10^{-8}	Switch off and high impedance. The RSC_MAIN Safety control module stop sending information or send error information to co-robot system via FSOE.