

Functional Safety

Certificate No. SHFS2211000364MD ISSUE 1

Certificate Holder: PRACTEK Technology Co., Ltd.
1 / F, Building 1, No.168, Dieqiao Road, Pudong District, Shanghai, China

Trademarks: 

Certified Product: Configurable safety control unit

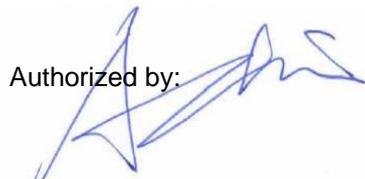
Model (s) No. / Series: FS MSC-C10S4 / FS MSC-C10S4.X
FS SGR-PER2S4 / FS SGR-PER2S4.X
FS SGR-PER2S2A2 / FS SGR-PER2S2A2.X

Assessment Performed: EN ISO 13849-1: 2015
IEC 61508-1~3: 2010
IEC 62061: 2021

Conclusion: The safety architecture and performance level meet PLe with category 3 according to EN ISO 13849-1, and SIL3 with HFT=1 (1oo2D) according to IEC61508 / IEC62061, detail information of safety function items is shown in APPENDIX.

As shown in the technical report number(s): SHFS221000036471/2/3

This certificate confirms the achievement of the requirements of functional safety based on proof of the safety-related parameters (failure rate, DC / SFF, safety architecture etc), proofs that processes, and methods are established at the manufacturer guaranteeing that unexceptionable processes in terms of risk analysis, design, production, validation, modification and quality management comply with the standard.

Authorized by:  **Issued Date:** 14th Nov 2022

Andrew Zhai **Expired Date:** 14th Nov 2027
Certifier

This certificate is issued by the company under its General Conditions for Certification Services accessible at <https://www.sgs.com/en/terms-and-conditions>. Attention is drawn to the limitations of liability defined therein and in the Test Report here above mentioned which findings are reflected in this Certificate. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

Certification Body

SGS-CSTC Standards Technical Services Co., Ltd.
16/F, Century Yuhui Mansion, No.73 Fucheng Road, Beijing China 100036
Tel: (86-10)6845 669

CERTIFICATE

APPENDIX

Supplementary of Functional Safety Certificate

Certificate No. SHFS2211000364MD ISSUE 1

Summary of Assessment Result in ISO13849-1 report:

SF	Item &Description	PL/SIL Achieved	Response Time (ms)	CCF	DC	MTTFd	PFHd
SF1	Switch input with relay output	PL e with Cat.3 according to ISO13849-1, SIL3 with HFT=1 according to IEC61508 / IEC62061	30	80	93.54%	2050	4.29E-8
SF2	Switch input with MOSFET output		30		95.63%	1340	
SF3	Overspeed control proximity switch with relay output		30		94.84%	1110	
SF4	Overspeed control proximity switch with MOSFET output		30		96.20%	1110	
SF5	Overspeed control encoder with relay output		30		96.16%	1070	
SF6	Overspeed control encoder with MOSFET output		30		96.90%	835	

Summary of PFH, PFD, SFF for safety functions in IEC61508 / IEC62061 report:

SF	Operation Mode	Proof Test Interval					SFF
		8760h (1year)	17520h (2year)	26280h (3year)	87600h (10year)	175200h (20year)	
SF1	PFD (LD)	7.88E-07	1.58E-06	2.37E-06	6.16E-06	1.58E-05	99.85%
	PFH (HD/CM)	1.80E-10	1.80E-10	1.80E-10	1.80E-10	1.81E-10	
SF2	PFD (LD)	8.16E-07	1.41E-06	2.01E-06	6.19E-06	1.22E-05	99.84%
	PFH (HD/CM)	1.86E-10	1.86E-10	1.86E-10	1.87E-10	1.87E-10	
SF3	PFD (LD)	7.20E-06	1.44E-05	2.17E-05	7.21E-05	1.52E-04	99.84%
	PFH (HD/CM)	1.65E-10	1.64E-10	1.66E-10	1.71E-10	1.78E-10	
SF4	PFD (LD)	7.23E-06	1.44E-05	2.17E-05	7.21E-05	1.52E-04	99.84%
	PFH (HD/CM)	1.65E-10	1.65E-10	1.67E-10	1.72E-10	1.78E-10	
SF5	PFD (LD)	9.01E-07	1.66E-06	2.70E-06	7.29E-06	1.81E-05	99.83%
	PFH (HD/CM)	2.06E-10	2.06E-10	2.06E-10	2.06E-10	2.07E-10	
SF6	PFD (LD)	9.29E-07	1.50E-06	2.35E-06	7.32E-06	1.45E-05	99.47%
	PFH (HD/CM)	2.12E-10	2.12E-10	2.12E-10	2.13E-10	2.13E-10	

Note:

“LD” in above table means low demand mode, “HD/CM” means high demand / continuous mode.