



Functional Safety Certificate

No. 3Q181114.SMCQT30

In Partnership with:	POCE					
Certificate's Holder:	SHENZHEN MORC CONTROLS CO., LTD. Morc Building, No.8, Dabao Rd, Bao'an District, Shenzhen City, Guangdong Province, China.					
Product: Model(s):	Limit Switch MLS300/800/500/300-S/800-S Series					
Standard:	Standard: 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 A Element SIL 2 @ HFT= 0; SIL 3@ HFT=1; Route 2 _H PFDAvg and Architecture Constraints must be verified each application * Safety Function: The Limit Switch will move to the designed safe position when de-energized / energized within the specified safety time. * Application Restrictions: The unit must be properly designed into a Safety Instrumented Function per the Safety Manual requirements. * Is suitable to be safety function according to the description and the configuration defined in Annex I.					
Verification Mark:	The Verification Mark can be affixed on the product. It is NOT permitted to alter the Verification Mark in any way					
Remark: This SIL Verificati existent for the above lis safety related system up t	on of Compliance has been issued on a voluntary basis. ECM confirms that a Test Report is ted product(s) and found to meet the requirements of above standards for application in to Safety Level of SIL 3.					

The unit must be properly designed into a Safety Instrument Function as per the requirements in the Safety Manual. The Verification Mark shown above can be affixed on the product. It is NOT permitted to alter the Verification Mark in any way. In addition the Verification's Holder is NOT allowed to transfer the Verification to third parties. This certificate can be checked for validity at www.entecerma.it

Date of issue 14 November 2018

Expiry date 13 November 2023 Deputy Manager

Amanda Payne

Chief Manager Morco Morina

Ente Certificazione Macchine National July 243 - 40053 Valsamoggia Loc. Castello di Serravalle (Bo) Italiano 155 15141 = +39.0516705156 info@entecerma.it 🔊 www.entecerma.it

Annex I



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- SC 3 (SIL 3 Capability): 1. 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.
- 2. A Safety instrumented Function (SIF) designed with this product must not be used at a SIL level higher than stated.
- Random Capability: 3. The SIL limit imposed by the Architectural Constraints for each element.
- IEC 61508 Failure Rates: 4.

Failure Rate Data	Per 10 ⁹ Hours					
	Close On Trip				Open On Trip	
Clean Service	Full Stroke		Tight Shutoff			
	Normal	Pvst	Normal	Pvst	Normal	Pvst
Fail Dangerous Detected		282		282		282
Fail Dangerous Undetected	652	339	1528	1237	452	176
PVST: Partial Value Stroke Test						

SIL Verification: The Safety Integrity Level (SIL) of an entire Safety Instrumented Function (SIF) must be 5. verified via a calculation of PFDAVG 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 subsystem must be checked to assure compliance with minimum hardware fault tolerance (HFT) requirements.

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