

EC Type – Examination

Registered no.

TÜV CY 21 MD 020553

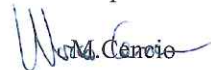
Customer's name and address	LS ELECTRIC Co., Ltd. LS-ro 127(Hogye-dong) Dongan-gu, Anyang-si, Gyeonggi-Do, 14119, Korea
Tested in accordance with	Annex I Machinery Directive 2006/42/EC EN 61800-5-2:2007 Adjustable speed electrical power drive systems - Part 5-2: Safety requirements - Functional EN 61508-1:2010 Functional safety of electrical/electronic/programmable electronic safety-related systems. Part 1: General requirements 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
Description of product	LSLV-S100 Series of PDS(SR)
Type Description according to Annex IV of Machinery	Logic Unit to ensure Safety Functions
Order number	020553
Validity	From 2021-06-04 to 2026-06-04
Remark	See 7 for safety functions assessed and for achieved PL The EC Type – Examination certificate is used according to Article 12(3) b or 12(4) a of Council Directive 2006/42/EC relating to machinery. It confirms that the listed Annex-IV equipment complies with the principal protection requirements of the directive.

TÜV CYPRUS Ltd (TÜV NORD Group)

The head of NB

D. Demosthenous

The inspector



This document is not valid when presented without the full attached schedule composed of 7 sections and 3 pages This certifies the result of the examination of the product sample submitted by the manufacturer. A general statement concerning the quality of the products from the series manufacture cannot be derived there from.

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1. Product Technical Specifications

The S100 Inverter is manufactured in a range of product groups based on drive capacity and power source specifications. Product name and specifications are detailed on the rating plate.

The present certificate is related to the following modules.

LSLV0004S100-1, LSLV0008S100-1, LSLV0015S100-1, LSLV0022S100-1,
 LSLV0004S100-2, LSLV0008S100-2, LSLV0015S100-2, LSLV0022S100-2,
 LSLV0037S100-2, LSLV0040S100-2, LSLV0055S100-2, LSLV0075S100-2,
 LSLV0110S100-2, LSLV0150S100-2, LSLV0004S100-4, LSLV0008S100-4,
 LSLV0015S100-4, LSLV0022S100-4, LSLV0037S100-4, LSLV0040S100-4,
 LSLV0055S100-4, LSLV0075S100-4, LSLV0110S100-4, LSLV0150S100-4,
 LSLV0185S100-4, LSLV0220S100-4, LSLV0300S100-4, LSLV0370S100-4,
 LSLV0450S100-4, LSLV0550S100-4, LSLV0750S100-4

Technical data:

DETAIL	MIN	TYP	MAX
Safety input Power supply [V _{dc}]	-	24	-
Current absorption for safety input [mA]	-	-	25
Operation Temperature range [°C] (max Rh 90%)	-10	-	+40 (Normal Duty) +50 (Heavy Duty)
Storage Temperature range [°C] (max Rh 90%)	-20	-	+65
Air pressure [kPa]	70	-	106
Max Installation height a.s.l. [m]	1000 (From 1000 to 4000m, the rated input voltage and rated output current of the drive must be derated by 1% for every 100m. / less than 1G (9.8m/sec ²))		
Environmental factors	An environment free from corrosive or flammable gases, oil residue or dust		

HW release

List of HW design circuits is included inside the assessment report No. 21 020553.

Safety functions:

SF1

Safe Torque Off as per Clause 4.2.2.2 of EN 61800-5-2:2007.

2. Technical file reference

Technical file reference 2021-04-30 LS ELECTRIC_TCF_S100_V1.0. The complete listing is in the assessment report.

3. Test report no.

Test documents according to applied standards are reported in the test report No. 21 020553 dated 2021-06-03.

4. Application and Limitation

The above mentioned equipment is tested according the standards on the first sheet.

5. Notes for the erection and operation:

Please refer to “S100_English Manual_2021-05-03” for the safe and proper operation, maintenance and service of the unit.

6. Risks analysis

The risk analysis according to the applied standards is in document LS ELECTRIC_STO_FMEDA_S100 V1.1_2021-05-03 dated 2021-05-04 and reported inside technical file 2021-04-30 LS ELECTRIC_TCF_S100_V1.0.

7. Performance level evaluation and common cause failure analysis

The results of the evaluation are reported below for each Safety Function:

Safety Function	HFT	Device type	SFF	Beta factor for CCF	SIL	PFH (h ⁻¹)
SF1	1(STO)+ 0 (SPMS)	A	77%	5%	2	1,2E-7

Failure rates of the electronic components as per Siemens SN29500, calculated based upon and average ambient temperature of 50°C.

- End of certificate-