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## S300 (High Performance Drive)

3-Phase 200V Type: 0.5 ~ 100HP (0.4 ~ 75kW)

3-Phase 400V Type: 0.5 ~ 350HP (0.4 ~ 220kW)

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- Improved sensorless control
- Advanced User Sequence
- Simple Master

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# 1. Flexibility

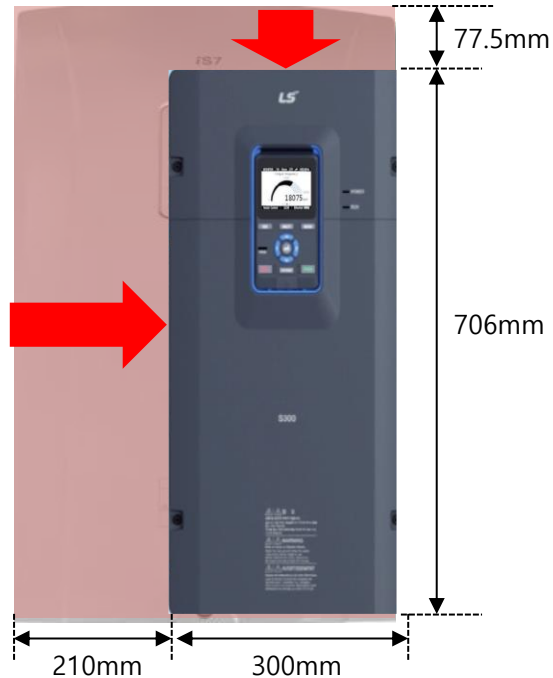
# 1. Flexibility

## Designed Compact

- *Smaller size than the previous model Starvert-iS7 Series.*

### World Best Compact Size

*Based on 200HP, 250HP 400V Class.*



*Product Size Comparison for 400V type*

Frame	Power	iS7 Size			S300 Size			S300 / iS7
		W	H	D	W	H	D	
FR1	0.4~3.7	150.0	284.0	200.0	150.0	276.0	194.0	94.3%
FR2	5.5, 7.5	200.0	355.0	225.0	180.0	310.0	225.0	78.6%
FR3	11, 15	250.0	385.0	284.0	200.0	355.0	225.0	58.4%
FR4	18.5, 22	280.0	461.6	298.0	240.0	424.0	265.0	70.0%
FR5	30, 37	300.1	594.1	303.2	252.0	500.0	271.0	63.2%
FR6	45	300.1	594.1	303.2	300.0	510.0	298.6	84.5%
FR7	55, 75	370.1	663.5	373.3	350.0	615.0	320.0	75.1%
FR8	90, 110	510.0	783.5	422.6	300.0	706.0	386.0	48.4%
FR9	132, 160	510.0	861.0	422.6	380.0	705.0	396.0	57.2%
FR10	185, 220	690.0	1078.0	450.0	426.0	922.3	440.0	51.6%

**Max. 52% Smaller than iS7**

※ For more information, refer to the Appendix A.

# 1. Flexibility

## Various Options

- Various of Options are available and more options will be released in the near future.*

### Communication Options

**RAPIENET+**  
(RAPIenet, EtherNet/IP, Modbus TCP)

**PROFINET**

### Encoder Options

*Pulse Open Collector Encoder (15V/24V)*

*Pulse Line Drive Encoder (15V/12V)*

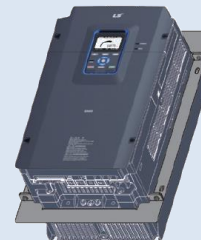
### I/O Expansion Option

*DI: 3P(NO/NC selectable), DO:  
2P(NPN/PNP Selectable), AI: 2P, AO: 1P*

### Conduit Option



### Flange Option



# 1. Flexibility

## Motor Compatibility

- S300 is a universal drive designed for all applications, offering seamless control of SynRM (Synchronous Reluctance Motor), PM Motor (Permanent Magnet Motor), and IM (Induction Motor) with maximum versatility and efficiency.*



1

IM, PMSM and SynRM<sup>※</sup> control

2

Achieving IE4 Efficiency

3

Max. 40% Energy Reduction

4

Lower carbon footprint

※ SynRM control algorithm will be available in a few years.

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## 2. Safety



## 2. Safety

### Reliability/Quality

- *Global Specification Satisfied*
  - *UL, CE, KC, RoHS conformity registration.*
  - *Built-in EMC: EN 61800-3:2018 / Category C3 (Class A)*
  - *LVD: EN 61800-5-1:2007 (2nd Edition)*
- *Safety Torque Off*
  - *European Machinery Directive 2006/42/EC*
  - *EN 61800-5-2:2017 SIL2*
  - *EN ISO 13849-1:2023 Category 3, PL d*
  - *EN 61508:2010 SIL2*
- *IP rating*
  - *0.4~75kW-2, 0.4~160kW-4: IP20 (UL Open Type, UL Type 1)*
  - *185~220kW-4 : IP00*



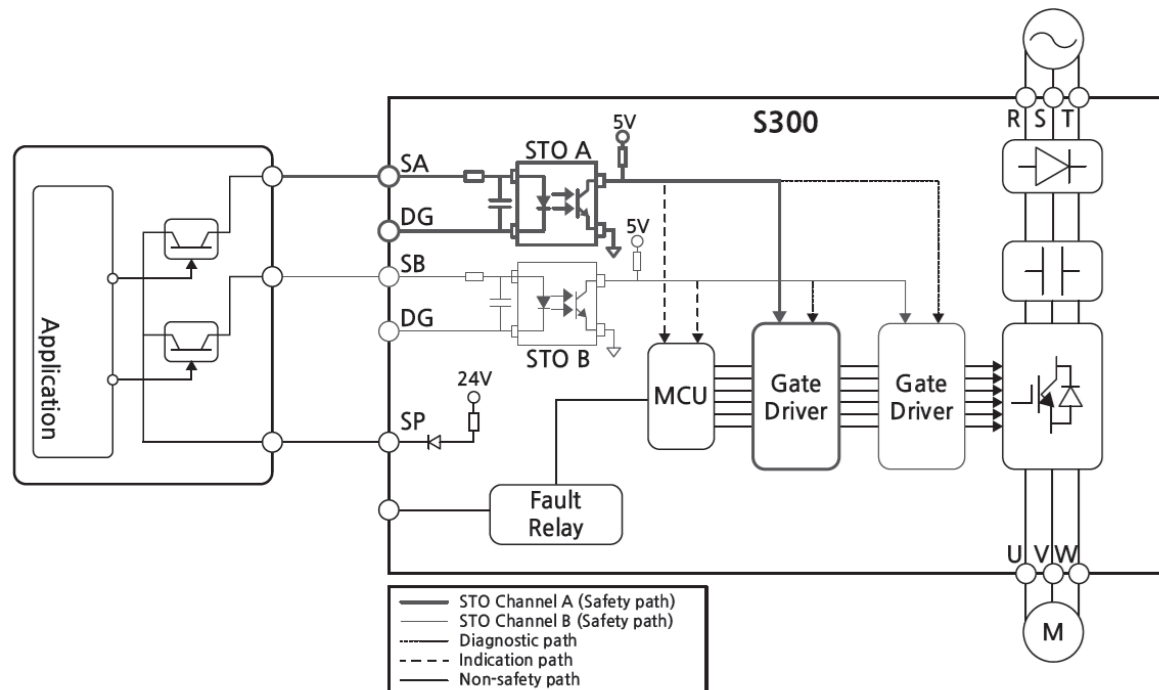


## 2. Safety

### Safety Torque Off

- S300 provides contactor-less operation with STO (Safety Torque Off).
- Engineered to meet rigorous safety standards, S300 is certified for EN ISO 13849-1 PLd and IEC 61508 SIL2, ensuring reliable operational safety across diverse industrial environments.

### STO Wiring Diagrams



※ The factory setting for SP-SA and SP-SB is short circuit by a factory installed jumper.

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## 3. Easy Engineering

# 3. Easy Engineering

## Smart LCD Operator

- Experience smarter control with our high-resolution LCD keypad, supporting multi-language display for global usability: Currently supports English and Korean (Italian, Polish, Spanish, German, French, Turkish will be supported)
- Easily save and back up data via the built-in USB port, with memory storage functionality.
- Add an RTC battery to enable real-time data logging—ideal for precision and traceability.

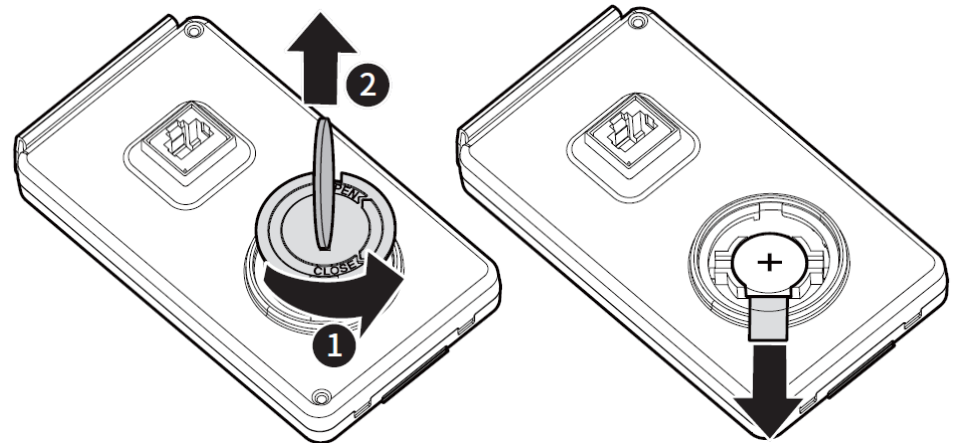
### Two USB Type-C

Easily save and back up data via the built-in USB port, with memory storage functionality.



### RTC (Real Time Clock)

When a battery is inserted into the SLO, the exact fault time can be logged.



① Remove the *Battery cover*

② Remove insulation strip and insert battery

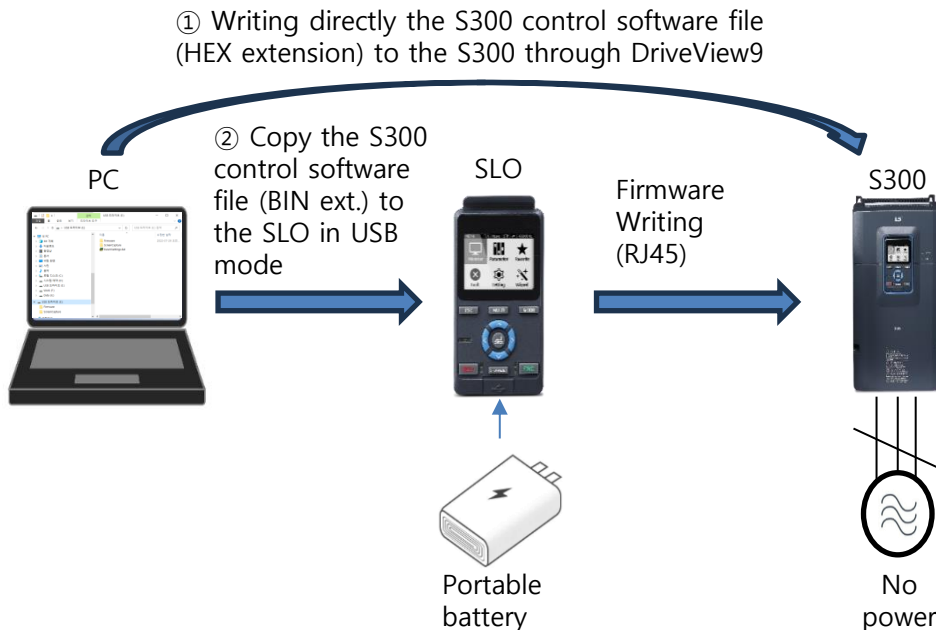
# 3. Easy Engineering

## USB Memory Function

- Effortlessly keep your S300 drive up-to-date with our user-friendly software upgrade process.
- Utilize a PC and simple SLO interface to seamlessly update firmware and features, ensuring optimal performance and access to the latest enhancements.

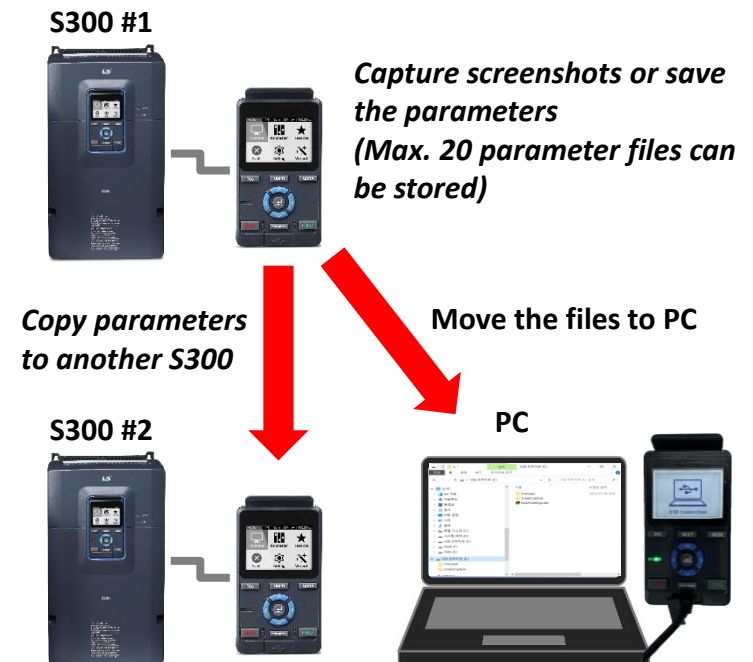
### Easy Firmware Upgrade

There are two ways to upgrade your drive to the latest version.



### Parameter Copy

Parameter save file or Screen capture image can be moved from SLO to PC



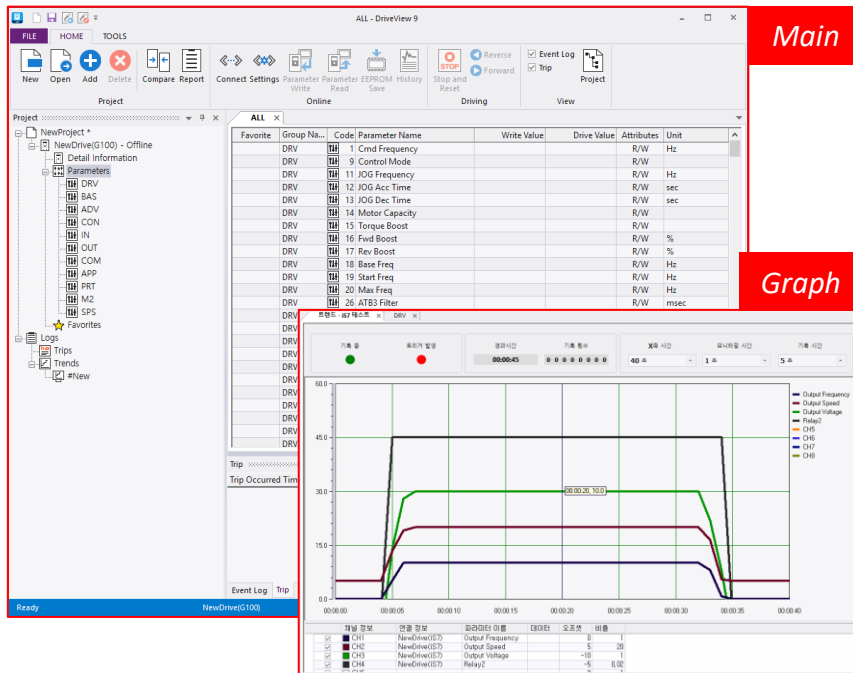
# 3. Easy Engineering

## PC Engineering Tool

- Easily back up S300's configurations with a SLO or use the configuration tool DriveView9. (DriveView9 can be downloaded from LS ELECTRIC's official website for free)
- A SLO provides clear parameter descriptions and units. All laid out in a logical sequence to support a rapid and effortless system start up.

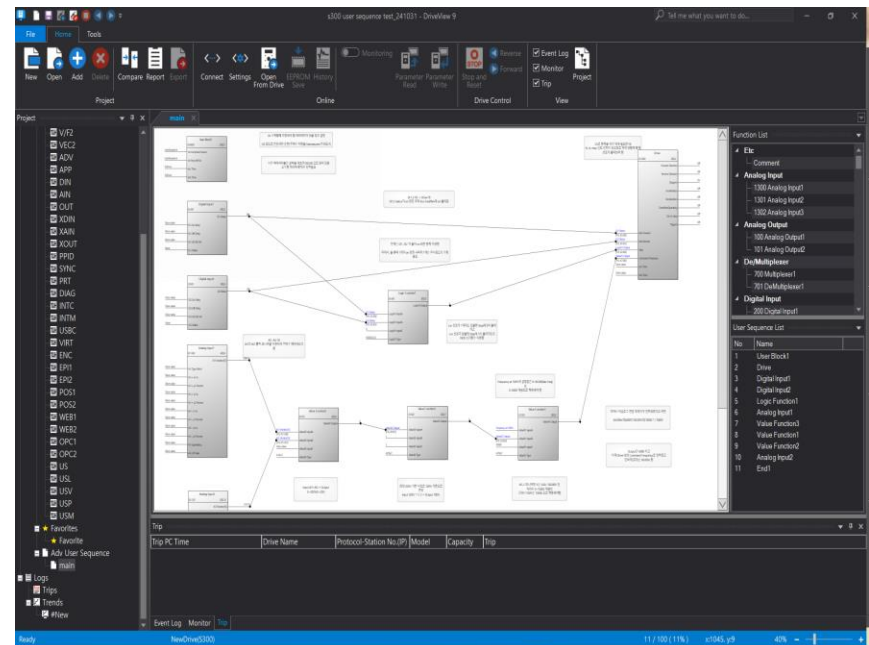
### Simple Scope in DriveView9

Edit parameters and monitor parameters as graphs (8 channels).



### Advanced User Sequence

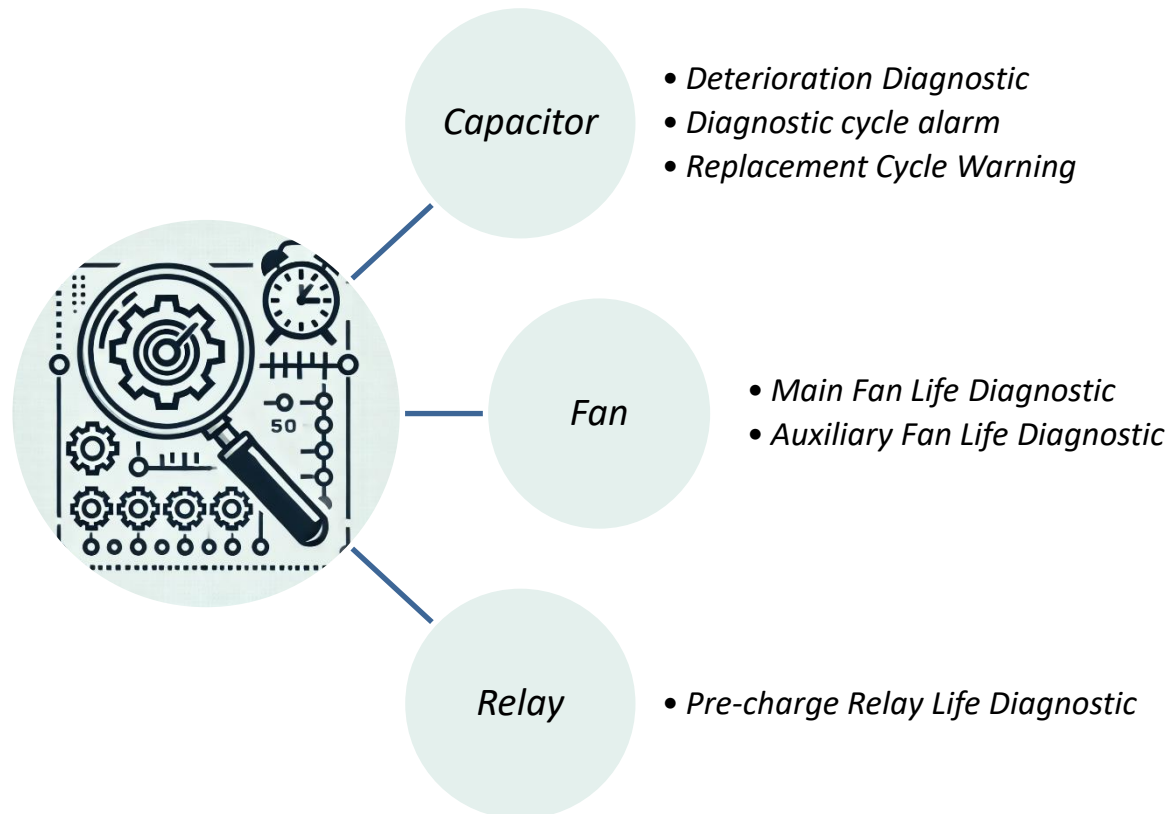
With DriveView9, Use the full potential of Advanced User Sequence. A PC can be connected via USB port of S300.



# 3. Easy Engineering

## Predictive Maintenance

- *Maximize uptime with predictive maintenance: anticipate issues before they occur and keep your operations running smoothly. Transform your maintenance strategy with data-driven insights for a more reliable future.*



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## 4. Upgraded Features



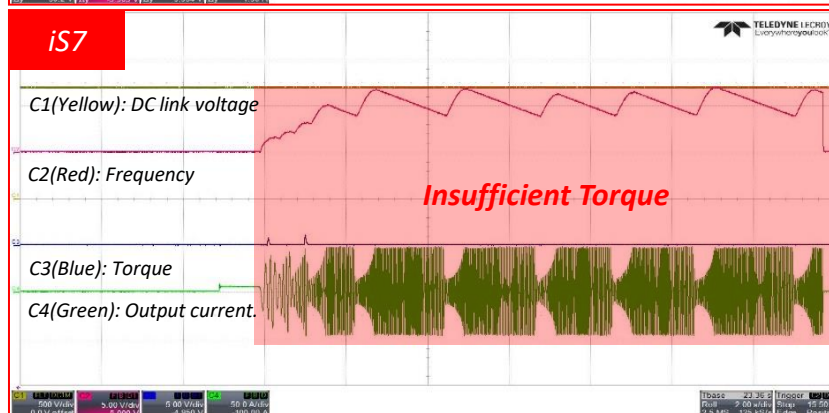
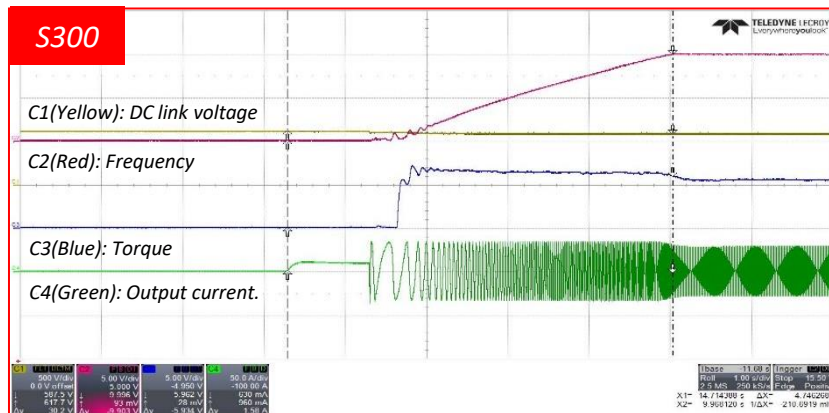
# 4. Upgraded Features

## Improved Sensorless Control

- Improved Auto tuning algorithm and Dead time compensation enables powerful starting torque and stable torque control.

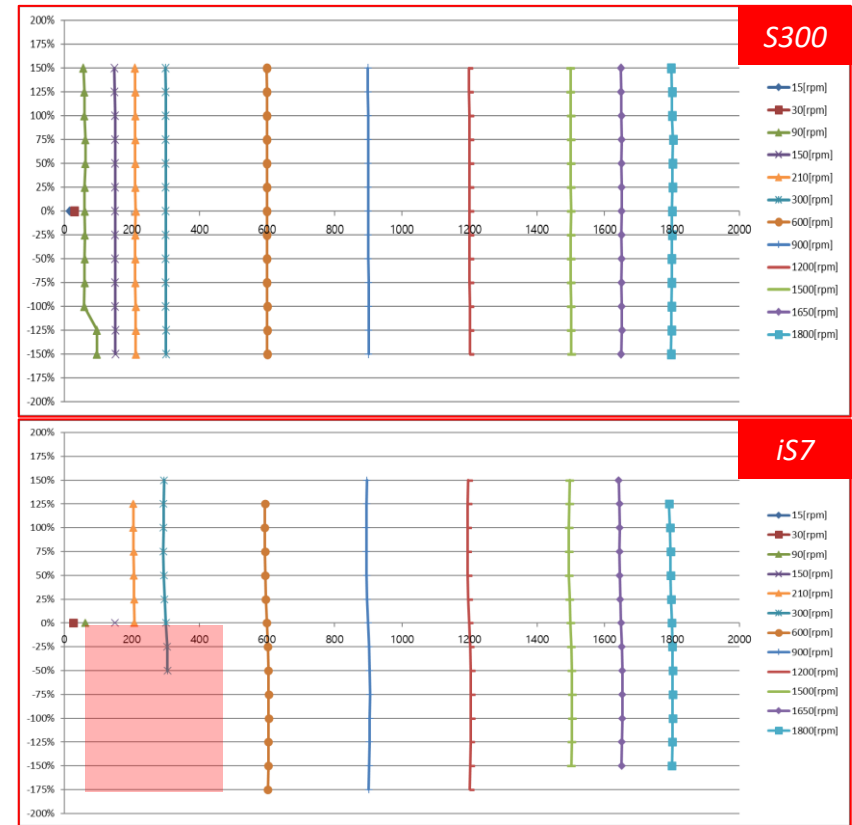
### Powerful Starting Torque

Test condition: 50 N.m Torque load, 60Hz, Acc time: 1sec.



### Stable Torque Output

7.5kW 400V Sensorless Performance Data (Auto tuned)



## 4. Upgraded Features

### Upgraded User Sequence

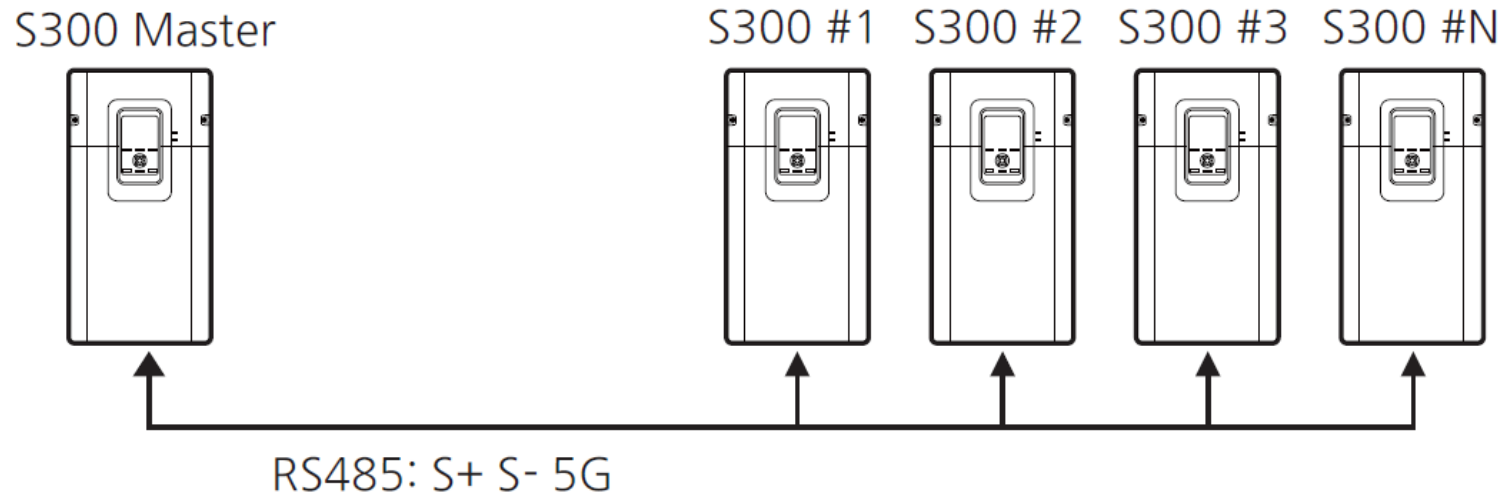
- *With 100 function blocks, User Sequence enables us to effortlessly customize and automate operations. Create tailored sequences to streamline processes, enhance productivity, and adapt quickly to changing needs.*
- *Real-time parameter monitoring is provided in DriveView9*

	LS ELECTRIC LV Drive Series		
Product Name	S100	G100	S300
Control cycle time	10~1000ms	10~1000ms	10~1000ms
Provided functions	28 types	28 types	43 types (Logic function 10 types + Value function 33 types)
Maximum number of Blocks	18	18	100 (Expandable)
User Custom Block Creation	X	X	O
Real Time Monitoring	X	X	O (DriveView9)

## 4. Upgraded Features

### Simple Master

- *Simple Master is a function that allows one S300 to act as a communication master and operate multiple drives as slaves.*
- *It's possible to transfer some data or commands between master and slaves.*
- *All drive should be connected by RS485 communication.*



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# Appendix

# Appendix A. Specification

## Specification

### 1. Input & Output (1)

Series			S300															
Capacity			0.4kW	0.8kW	1.5kW	2.2kW	4kW	5.5kW	7.5kW	11kW	15kW	18.5kW	22kW	30kW	37kW	45kW	55kW	75kW
200V	Frame		FR1					FR2		FR3	FR4		FR5	FR6	FR7		FR9	
	Input Voltage[V]		3 phase 200 ~ 240, -15%~+10%															
	Output Voltage[V]		3 phase 200 ~ 240															
	Output Current [A]	HD	3.2	5	8	11	17.5	25	33	47	60	75	88	115	145	180	220	288
		ND	5	8	12	16	22	30	42	56	70	82	110	138	169	211	288	345
	Built-In EMC		Built-in Standard for all capacities															
400V	Frame		FR1					FR2		FR3		FR4		FR5		FR6	FR7	
	Input Voltage[V]		3 phase 380~480, -15%~+10%															
	Output Voltage[V]		3 phase 380 ~ 480															
	Output Current [A]	HD	1.8	3.4	4.8	5.5	9.2	14.8	16.5	24	31	39	45	61	75	91	110	152
		ND	2.5	4.1	6	8	12.1	17.5	24	31	38	45	61	75	91	107	142	169
	Built-In EMC		Built-in Standard for all capacities															
Common	Input Freq[Hz]		50/60 ±5%															
	Output Freq[Hz]		0 ~ 590															

### 2. Structure (1)

Protection structure	IP 20 (Basic), Satisfy UL Enclosed Type 1 when UL Open & Enclosed Type 1 (Option) Conduit Option is installed
Cooling type	Forced fan cooling
Mounting type	Wall-mount Type

# Appendix A. Specification

## Specification

### 1. Input & Output (2)

Series			S300					
Capacity			90kW	110kW	132kW	160kW	185kW	220kW
400V	Frame		FR8		FR9		FR10	
	Input Voltage[V]		3 phase 380~480, -15%~+10%					
	Output Voltage[V]		3 phase 380 ~ 480					
	Output Current [A]	HD	183	223	264	325	370	425
		ND	223	264	325	370	432	481
	Built-In EMC		Built-in Standard for all capacities					
Common	Input Freq[Hz]		50/60 ±5%					
	Output Freq[Hz]		0 ~ 590					

### 2. Structure (2)

Protection structure	IP 20 (Basic), Satisfy UL Enclosed Type 1 when UL Open & Enclosed Type 1(Optional) Conduit Option is installed
Cooling type	Forced fan cooling
Mounting type	Wall-mount Type

# Appendix A. Specification

## Specification

### 3. Control Specification

Series	S300 Standard
Control method	V/F Control, Sensorless vector, Slip Compensation, V/F PG, Vector
Control function	Refer to the functional specifications
Operating method	Select one among Smart operator, Terminal block, Communication
Frequency settings power resolution	Digital command: 0.01Hz Analog command: 0.06Hz (Max frequency: 60Hz)
Frequency accuracy	1% of Max output frequency
V/f pattern	Linear, Square reduction, User V/F
Overload capacity	HD - 1min at 150% ND: 200V-45kW and less: 120% 1 min, 55kW and above: 110% 1 min 400V-75kW and less: 120% 1 min, 90kW and above: 110% 1min
Torque boost	Manual torque boost, Auto torque boost
Switching frequency	1 ~ 15kHz
Built-in DC chopper	18.5kW-2, 37kW-4 and less: Built-in Standard, 22kW-2, 45kW-4 and above: External Option

### 4. Standards

Standards	UL, CE, KC
IP	IP 20 (Basic), Satisfy UL Enclosed Type 1 when UL Open & Enclosed Type 1(Optional) Conduit Option is installed

### 5. Environment

Operating temperature	HD : -10~50°C, ND : -10~40°C
Storage temperature	-10~50°C (40°C and above: 2.5%/°C Current derating, 50°C: 75% of the rated current)
Humidity	Relative humidity less than 95% RH (to avoid condensation forming)
Oscillation & Altitude	1,000m and less, 9.8m/sec <sup>2</sup> (1.0G) and less
Pollution Degree	Pollution Degree 2 Environment



# Appendix B. Comparison

## Comparison with iS7

### 1. Size Comparison

#### 400V type

Frame	Power	iS7 Size				S300 Size				S300 / iS7
		W	H	D	Vol.	W	H	D	Vol.	
FR1	0.4~3.7	150.0	284.0	200.0	8.5 ℓ	150.0	276.0	194.0	8.0 ℓ	94.3%
FR2	5.5, 7.5	200.0	355.0	225.0	16.0 ℓ	180.0	310.0	225.0	12.6 ℓ	78.6%
FR3	11, 15	250.0	385.0	284.0	27.3 ℓ	200.0	355.0	225.0	16.0 ℓ	58.4%
FR4	18.5, 22	280.0	461.6	298.0	38.5 ℓ	240.0	424.0	265.0	27.0 ℓ	70.0%
FR5	30, 37	300.1	594.1	303.2	54.1 ℓ	252.0	500.0	271.0	34.1 ℓ	63.2%
FR6	45	300.1	594.1	303.2	54.1 ℓ	300.0	510.0	298.6	45.7 ℓ	84.5%
FR7	55, 75	370.1	663.5	373.3	91.7 ℓ	350.0	615.0	320.0	68.9 ℓ	75.1%
FR8	90, 110	510.0	783.5	422.6	168.9 ℓ	300.0	706.0	386.0	81.8 ℓ	48.4%
FR9	132, 160	510.0	861.0	422.6	185.6 ℓ	380.0	705.0	396.0	106.1 ℓ	57.2%
FR10	185, 220	690.0	1078.0	450.0	334.7 ℓ	426.0	922.3	440.0	172.9 ℓ	51.6%

#### 200V type

Frame	Power	iS7 Size				S300 Size				S300 / iS7
		W	H	D	Vol.	W	H	D	Vol.	
FR1	0.4~3.7	150.0	284.0	200.0	8.5 ℓ	150.0	276.0	194.0	8.0 ℓ	94.3%
FR2	5.5, 7.5	200.0	355.0	225.0	16.0 ℓ	180.0	310.0	225.0	12.6 ℓ	78.6%
FR3	11	250.0	385.0	284.0	27.3 ℓ	200.0	355.0	225.0	16.0 ℓ	58.4%
FR4	15	250.0	385.0	284.0	27.3 ℓ	240.0	424.0	265.0	27.0 ℓ	98.7%
FR4	18.5	280.0	461.6	298.0	38.5 ℓ	240.0	424.0	265.0	27.0 ℓ	70.0%
FR5	22	280.0	461.6	298.0	38.5 ℓ	252.0	500.0	271.0	34.1 ℓ	88.7%
FR6	30	300.0	570.0	265.2	45.3 ℓ	300.0	510.0	298.6	45.7 ℓ	100.7%
FR7	37, 45	370.0	630.0	281.2	65.5 ℓ	350.0	615.0	320.0	68.9 ℓ	105.1%
FR9	55, 75	465.0	750.0	355.6	124.0 ℓ	380.0	705.0	396.0	106.1 ℓ	85.5%

kW	400V type		200V type	
	S300	iS7	S300	iS7
0.4	1 (8.0ℓ)	1 (8.5ℓ)	1 (8.0ℓ)	1 (8.5ℓ)
0.75				
1.5				
2.2				
3.7				
5.5	2 (12.6ℓ)	2 (16.0ℓ)	2 (12.6ℓ)	2 (16.0ℓ)
7.5	3 (16.0ℓ)	3 (27.3ℓ)	3 (16.0ℓ)	3 (27.3ℓ)
11.0			4 (27.0ℓ)	4 (38.5ℓ)
15.0			5 (34.1ℓ)	
18.5	4 (27.0ℓ)	4 (38.5ℓ)	6 (45.7ℓ)	5 (45.3ℓ)
22.0	5 (34.1ℓ)	6 (54.1ℓ)	7 (68.9ℓ)	7 (65.5ℓ)
30.0			9 (106.1ℓ)	9 (124.0ℓ)
37.0	6 (45.7ℓ)	8 (91.7ℓ)	10 (168.9ℓ)	
45.0	7 (68.9ℓ)	11 (185.6ℓ)	12 (334.7ℓ)	
55.0	8 (81.8ℓ)	12 (334.7ℓ)		
75.0	9 (106.1ℓ)			
90.0	10 (172.9ℓ)			
110.0				
132.0				
160.0				
185.0				
220.0				

# Appendix B. Comparison

## Comparison with iS7

### 2. Terminal Comparison

DA1	DB1	DC1	S+	S-	5G	EPI	VR+	VR-	AI1	AI2	AI3	AO1	AO2	CM	DI7	DI8
DA2	DC2		DQ3	EG	TI	5G	TO	DP	DG	DI1	CM	DI2	DI3	DI4	DI5	DI6

Category	Naming	S300 I/O	iS7 I/O
Terminal Block Type		Detachable type I/O 33pin (5mm pitch)	Detachable type I/O 33pin
Digital Input	DI1~DI8	8 EA	8 EA
Digital Power Output	DP, DG	24V	24V
Digital Output	DA1, DB1, DC1 DA2, DC2 DQ3, EG	3-contact terminal 1EA 2-contact terminal 1EA O.C 1EA	3-contact terminal 1EA 2-contact terminal 1EA O.C 1EA
Analog Input	AI1~AI3	V/I selectable 3EA	V 1EA, I 1EA
Analog Ref.	VR+, VR-	+10V, -10V	+12V, -12V
Analog Output	AO1, AO2	Bipolar V / Unipolar I selectable 2EA	Bipolar V & Unipolar I selectable 2EA
Pulse Train Input	TI	1 EA	External option (Encoder)
Pulse Train Output	TO	1 EA	External option (Encoder)
External DC Input(24V)	EPI	1 EA	External option (External Power option)
STO	SP, SA, SB	Provided as standard	External option (Safety option)
Internal Comm.	S+, S-	RS-485 (Terminals, RJ45)	RS-485 terminals

# LS ELECTRIC Customer Support Platform

## SSQ & Youtube Channel

- Operate various platforms for automation technology content and data download

LS ELECTRIC Youtube <https://youtube.com/c/LSELECTRICAutomationOasis>

Providing training videos for automation products on Youtube channel named **LS ELECTRIC Automation Oasis**

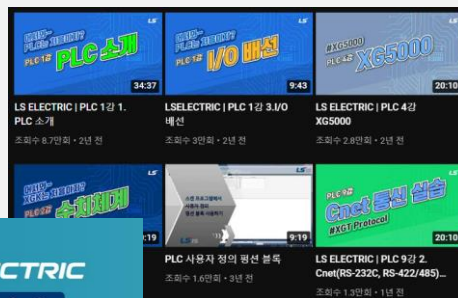
SSQ (Library)

<https://sol.ls-electric.com/>

Providing a various of contents like Training material, Troubleshooting, Success stories, Product Introduction, User manuals on **SSQ (Solution Square)**

### Youtube Channel Introduction

- ✓ Providing training videos for PLC, HMI, SERVO, INV
- ✓ Providing video in Korean/English



### Engineering SW Integration Services



- ✓ Sample, Graphic library download
- ✓ The latest software version check and updates

### Quick and Easy Tech Information Search



- ✓ High quality & up-to-date materials on technology and products
- ✓ Easy access to materials in mobile
- ✓ Information sharing through the community.

