



# L510s

Compact V/F & SLV control Drive





# L510s Series

## Compact V/F & SLV control Drive



### MAIN FEATURES

Output frequency up to 599Hz

Built-in Modbus RS485 communication for one to one and one to many control

Built-in digital display and keypad including speed adjustment potentiometer

RJ45 interface for PC and copy module

Compact space saving design for side by side installation. Plus optional Din rail mounting kit

Built-in PID feedback control

Rapid stop function built-in complying with global standard

Earthing terminals built-in into heat sink to effectively provide grounding protection

Flip form communication interface for easy link and dust-proof feature, with operational and protective functions

Auto Carrier frequency change to limit inverter over temperature

Frame1 with fanless design can effectively objects entry to extends product life

**NEW** Higher reliability and environment immunity with coated PCB

**NEW** 32 bit 100M Hz CPU design provides high performance, faster A/D conversion and torque compensation

**NEW** Control mode include V/F and **SLV**

**NEW** Communication interface modules for Profibus/ DeviceNet/ Ethernet(TCP/IP)/ CANopen

**NEW** New Built-in BACnet communication function

**NEW** Built-in EMI filter. For interference suppression in compliance with (IEC) EN61800-3 and (IEC)EN 61800-5-1 standard.

**NEW** L510s connects grounding kit (option) to enhance the EMC effect

**NEW** Motor over-temperature protective function to protect motor (fulfilled by PTC)

\* Red words represent new function for L510s

Power Rating	0.2kW 0.25HP	0.4kW 0.5HP	0.75kW 1HP	1.5kW 2HP	2.2kW 3HP	3.7kW 5HP	5.5kW 8HP	7.5kW 10HP	11kW 15HP
L510s	<b>100V 1 phase</b>								
	<b>200V 1 phase</b>								
	<b>200V 3 phase</b>								
			<b>400V 3 phase</b>						

\* Red color represent new range in power rating for L510s

# BASIC SPECIFICATIONS

## 100V Class : Single phase

Model : L510-□□□-SH1-N/P	1P2	1P5	101
Horse power (HP)	0.25	0.5	1
Suitable motor capacity (kW)	0.2	0.4	0.75
Rated output current (A)	1.8	2.6	4.3
Rated capacity (kVA)	0.7	1.0	1.7
Input voltage range(V)	Single Phase : 100~120V(+10%-15%),50/60HZ		
Output voltage range(V)	Three phase 0~240V		
Input current (A)*	9.5	13	19
weight(kG)	0.9	0.9	1.4
Allowable momentary power loss time (S)	1.0	1.0	1.0
Enclosure	IP20		

## 200V Class : Single phase. F : Standards for built-in filter

Model : L510-□□□-SH1-N/P (L510-□□□-SH1F-P)	2P2	2P5	2P7	201	202	203
Horse power (HP)	0.25	0.5	0.75	1	2	3
Suitable motor capacity (kW)	0.2	0.4	0.75	1.5	2.2	
Rated output current (A)	1.8	2.6	4.3	7.5	10.5	
Rated capacity (kVA)	0.7	1.0	1.7	3.0	4.0	
Input voltage range(V)	Single Phase : 200~240V(+10%-15%),50/60HZ					
Output voltage range(V)	Three phase 0~240V					
Input current (A)*	4.9	7.2	9	11	15.5	21
weight(kG)	0.9	0.9	0.9	0.9	1.4	1.4
weight with filter(kG)	1.0	1.0	1.0	1.0	1.5	1.5
Allowable momentary power loss time (S)	1.0	1.0	1.0	1.0	2.0	2.0
Enclosure	IP20					

## 200V Class : Three phase

Model : L510-□□□-SH3-N/P	2P2	2P5	201	202	203	
Horse power (HP)	0.25	0.5	1	2	3	
Suitable motor capacity (kW)	0.2	0.4	0.75	1.5	2.2	
Rated output current (A)	1.8	2.6	4.3	7.5	10.5	
Rated capacity (kVA)	0.7	1.0	1.7	3.0	4.0	
Input voltage range(V)	Three phase : 200~240V(+10%-15%),50/60HZ					
Output voltage range(V)	Three phase 0~240V					
Input current (A)*	3.0	4.0	6.4	9.4	12.2	
weight(kG)	0.9	0.9	0.9	1.4	1.4	
Allowable momentary power loss time (S)	1.0	1.0	1.0	2.0	2.0	
Enclosure	IP20					

Model : L510-□□□-SH3	205	208	210			
Horse power (HP)	5	7.5	10			
Suitable motor capacity (kW)	3.7	5.5	7.5			
Rated output current (A)	17.5	26	35			
Rated capacity (kVA)	6.7	9.9	13.3			
Input voltage range(V)	Three phase : 200~240V (+10%-15%),50/60HZ					
Output voltage range(V)	Three phase 0~240V					
Input current (A)*	19.3	28.6	38.5			
weight(kG)	2.2	6.3	6.3			
Allowable momentary power loss time (S)	2.0	2.0	2.0			
Enclosure	IP20					

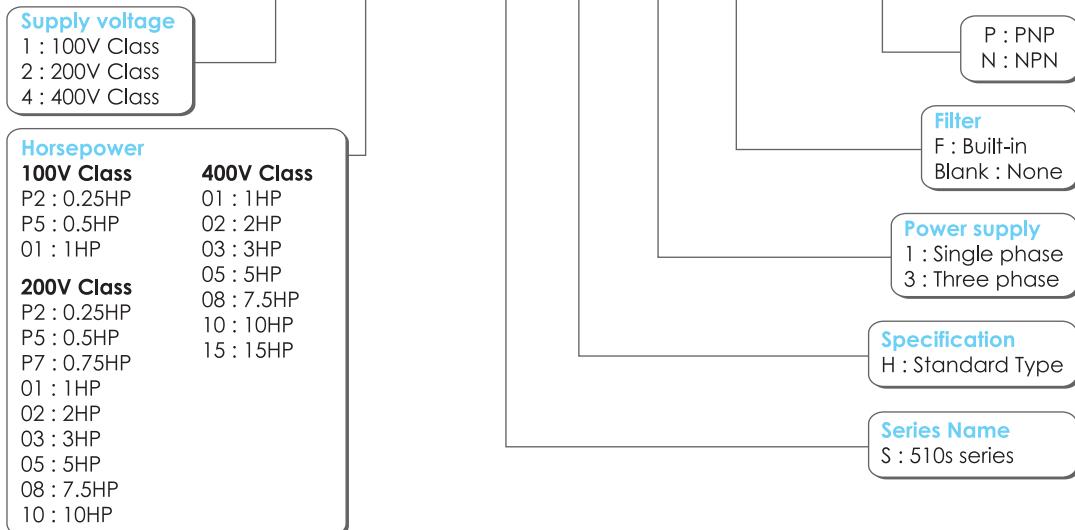
## 400V Class : Three phase. F : Standards for built-in filter

Model : L510-□□□-SH3-N/P (L510-□□□-SH3F-P)	401	402	403			
Horse power (HP)	1	2	3			
Suitable motor capacity (kW)	0.75	1.5	2.2			
Rated output current (A)	2.3	3.8	5.2			
Rated capacity (kVA)	1.7	2.9	4.0			
Input voltage range(V)	Three Phase : 380~480V (+10%-15%),50/60HZ					
Output voltage range(V)	Three phase 0~480V					
Input current (A)*	4.2	5.6	7.3			
weight(kG)	1.4	1.4	1.4			
weight with filter(kG)	1.5	1.5	1.5			
Allowable momentary power loss time (S)	2.0	2.0	2.0			
Enclosure	IP20					

Model : L510-□□□-SH3 (L510-□□□-SH3F)	405	408	410	415		
Horse power (HP)	5	7.5	10	15		
Suitable motor capacity (kW)	3.7	5.5	7.5	11		
Rated output current (A)	9.2	13.0	17.5	24		
Rated capacity (kVA)	7.0	9.9	13.3	18.3		
Input voltage range(V)	Three Phase : 380~480V (+10%-15%),50/60HZ					
Output voltage range(V)	Three Phase 0~480V					
Input current (A)*	10.1	14.3	19.3	26.4		
weight(kG)	2.2	2.2	6.3	6.3		
weight with filter(kG)	2.4	2.4	6.3	6.3		
Allowable momentary power loss time (S)	2.0	2.0	2.0	2.0		
Enclosure	IP20					

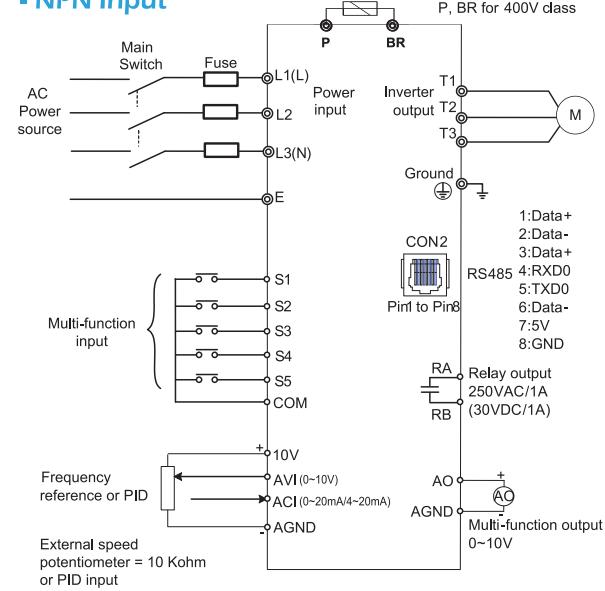
## MODEL IDENTIFICATION

L510 - 1 P2 - S H 1 □ - N

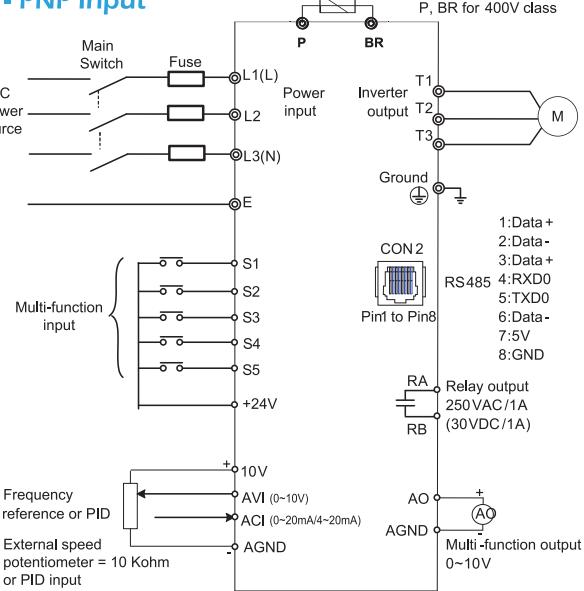


## WIRING DIAGRAM

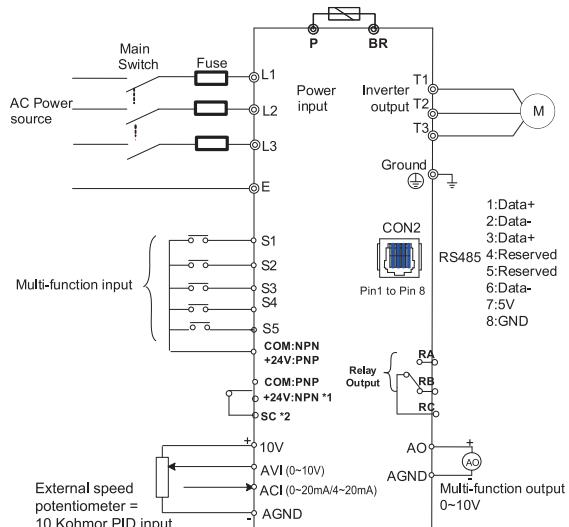
### NPN Input



### PNP Input



### Frame 3 & Frame 4 series



\*1:  
NPN: 24V connected to SC.  
PnP: COM connected to SC.

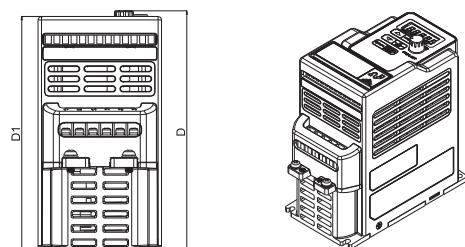
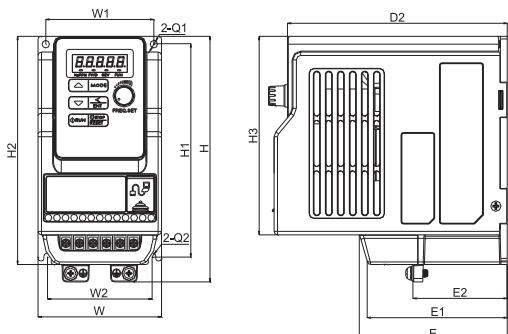
\*2:  
If SC is not connected, inverter parameter group 03-XX can't be enabled.

# GENERAL SPECIFICATIONS

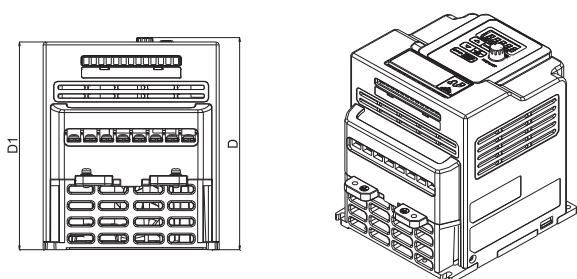
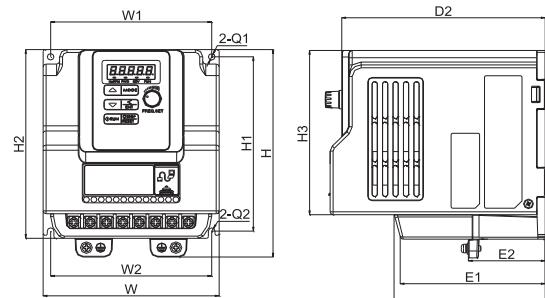
Item	L510s
<b>Control Mode</b>	V/F Control + SLV control
<b>Frequency</b>	Range 0.01~599.00Hz
	Setting resolution Digital input : 0.01Hz Analog input : 0.015Hz/60Hz or 0.012Hz/50Hz
	Setting Keypad : Set directly with ▲▼ keys or the VR (Potentiometer) on the keypad External Input Terminals: AVI(0/2~10V), ACI(0/4~20mA)input Multifunction input up/down function(Group3) Setting frequency by communication method.
	Frequency limit Lower and upper frequency limits 3 -skip frequency settings.
	Keypad run, stop button External terminals: Multi- operation-mode 2 / 3 wire selection Jog operation Run signal by communication method.
	V / F curve setting 6 fixed curves and one customized curve Carrier frequency 1~16kHz(default 5kHz) Acceleration and deceleration control 2 off Acc / dec time parameters. 4 off S curve parameters. Multifunction input 19 functions (refer to description on group3) 5 points, Frame1/2 : NPN&PNP by separate models, Frame 3/4 : NPN&PNP switchable Multifunction output 16 functions (refer to description on group3) Multifunction analog output 5 functions (refer to description on group4) 1 point (0~10V) Main features Overload Detection, 8 preset speeds, Auto-run, Acc/Dec Switch (2 Stages), Main/Alt run Command select, Main/Alt Frequency Command select, PID control, torque boost, V/F start Frequency ,Fault reset.
<b>Display</b>	LED Display: parameter/parameter value/frequency/line speed/DC voltage/output voltage/output current/PID feedback/input and output terminal status/Heat sink temperature/Program Version/Fault Log.
	LED Status Indicator For run/stop/forward and reverse.
<b>Protective Functions</b>	Overload Capacity and maximum current 150% of rated current under 60 seconds (150%/1min)
	Over voltage 100V/200V : Over 410V, 400V : Over 820V
	Under voltage 100V/200V : Under 190V, 400V : Under 380V
	Momentary Power Loss Restart Inverter auto-restart after a momentary power loss.
	Stall Prevention Stall prevention for Acceleration/ Deceleration/ and continuous Run.
	Short-circuit output terminal Electronic Circuit Protection
	Grounding Fault Electronic Circuit Protection
	Additional protective functions heatsink over temperature protection, Auto carrier frequency reduction with temperature rise, fault output, reverse prohibit, Number of auto restart attempts, Parameter lock, motor PTC over-temperature protection,over voltage suppression function.
<b>International Certification</b>	CE/UL/cUL/RCM
<b>Communication</b>	RS485 (Modbus) built in, with one to one or one to many control.
	Built-in BACnet communication.
	Profinet, DeviceNet, CANopen, TCP/IP by gateway.
<b>Environment</b>	Operating temperature -10~50°C(with fan), -10~40°C(without fan)
	Storage temperature -20~60°C
	Humidity Under 95%RH ( no condensation)
	Vibration 2G(19.6m/s <sup>2</sup> )for 57~150Hz and below. 0.3mm for 10~57Hz (According to IEC60068-2-6 standard)
	EMC Compliance EN61800-3, First Environment
	LVD Compliance EN50178
	Electrical Safety UL508C
	Protection level IP20

# DIMENSIONS

## Frame1 |



## Frame2 |



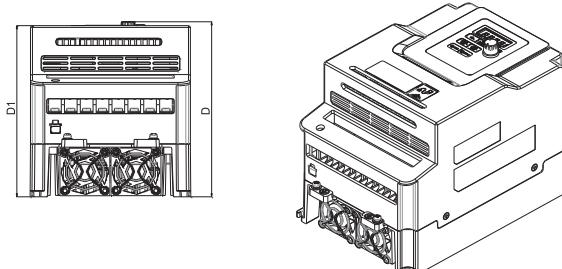
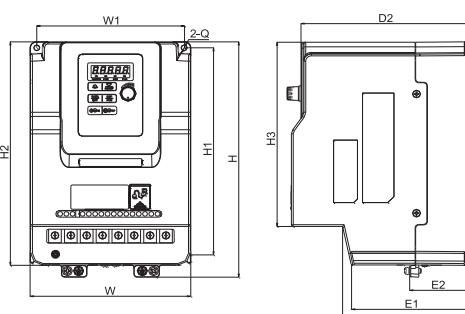
Model	dimension													Unit: mm	
	W	W1	W2	H	H1	H2	H3	D	D1	D2	E	E1	E2	O1	O2
L510-1P2-SH1-N/P	72	63	61	141	131	122	114	141	136	128.2	86.3	81.1	55	4.4	2.2
L510-1P5-SH1-N/P															
L510-2P2-SH1-N/P															
L510-2P5-SH1-N/P															
L510-201-SH1-N/P															
L510-2P2-SH1F-P															
L510-2P5-SH1F-P															
L510-2P7-SH1F-P															
L510-201-SH1F-P															
L510-2P2-SH3-N/P															
L510-2P5-SH3-N/P															
L510-201-SH3-N/P															

F : Built-in EMC filter

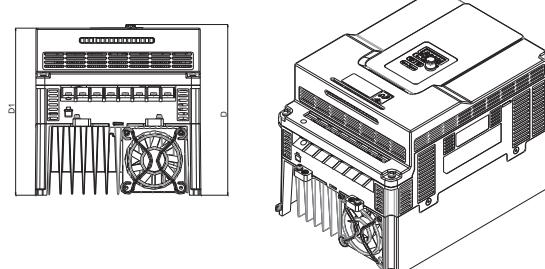
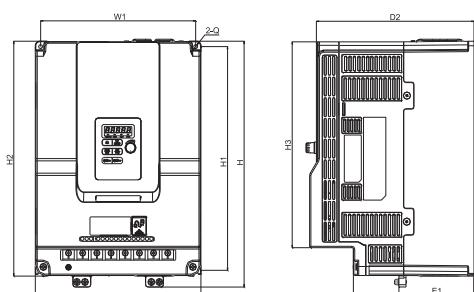
Model	dimension													Unit: mm	
	W	W1	W2	H	H1	H2	H3	D	D1	D2	E	E1	E2	O1	O2
L510-101-SH1-N/P	118	108	108	144	131	121	114	150	144.2	136.4	101.32	96.73	51.5	4.3	2.2
L510-202-SH1-N/P															
L510-203-SH1-N/P															
L510-202-SH1F-P															
L510-203-SH1F-P															
L510-202-SH3-N/P															
L510-203-SH3-N/P															
L510-401-SH3-N/P															
L510-402-SH3-N/P															
L510-403-SH3-N/P															
L510-401-SH3F-P															
L510-402-SH3F-P															
L510-403-SH3F-P															

F : Built-in EMC filter

## Frame3 |



## Frame4 |



Model	dimension													Unit: mm
	W	W1	H	H1	H2	H3	D	D1	D2	E	E1	E2	O	
L510-205-SH3	129	118	197.5	177.6	188	154.7	148	143.7	136	102.6	96	48.2	4.5	
L510-408-SH3														
L510-408-SH3F														
L510-405-SH3F														
L510-408-SH3F														

Model	dimension													Unit: mm
	W	W1	H	H1	H2	H3	D	D1	D2	E	E1	E2	O	
L510-208-SH3	187	176	273	249.8	261	228.6	190	185.6	177.9	136	84.7	4.5		
L510-210-SH3														
L510-410-SH3														
L510-415-SH3														
L510-410-SH3F														
L510-415-SH3F														

## TYPICAL APPLICATIONS

- ◆ Fans & Pumps
- ◆ Package Machines
- ◆ Automatic Door Control
- ◆ Winding Machines
- ◆ Conveyers
- ◆ Textile Machines
- ◆ Feeder Machines
- ◆ PCB Automation
- ◆ Small plastic crusher
- ◆ Food & beverage application



Package Machines

Conveyers

Automatic Door Control

PCB Automation

## ACCESSORIES

Accessories	Model	Function	Notes
Copy module	JN5-CU	① Duplicating parameters setting in one inverter to another inverter ② As a remote keypad to be used ③ Using RJ45 line to connect inverter	
Communication modules	JN5-CM-PDP	For connection of Profibus-DP communication protocol	For 510 series
	JN5-CM-TCP/IP	For connection of TCP-IP communication protocol	
	JN5-CM-DNET	For connection of DeviceNet communication protocol	
	JN5-CM-CAN	For connection of CANopen communication protocol	
RJ45 to USB connection cable	JN5-CM-USB	Using the TECO exclusive PC-software line	1.8m
EMC Grounding kit(Frame 1)	JN5-GK-L01	To enhance the EMC ability by enlarging the grounding area	For frame 1
EMC Grounding kit(Frame 2)	JN5-GK-L02		For frame 2
Din rail kit (Frame1)	JN5-DIN-L01	Used for mounting on the din rail	For frame 1
Din rail kit (Frame2)	JN5-DIN-L02		For frame 2



**Copy Unit (JN5-CU)**

※ Duplicating parameters setting in one Inverter to another Inverter.  
 ※ As a remote keypad to be used.  
 ※ Using RJ45 line to connect inverter.



**EMC Grounding Kit**

(for frame 1 & frame 2)



**RJ45 to USB (JN5-CM-USB)**

※ Using the TECO exclusive PC-software line.



Distributor

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