

L510

Advanced Micro Drive



1/4-1 HP (115V) • 1/4-3 HP (230V) • 1-3 HP (460V)

Features & Highlights

- Cost effective drive solution with wide range of programming capabilities
- Control Methods Available:
 - V/F mode or Sensorless Vector Operation
- Parameters grouped by function
- Power Range:
 - 115V, 1Ø (0.25 to 1 HP)
 - 230V, 1Ø (0.25 to 3 HP)
 - 230V, 3Ø (0.5 to 3 HP)
 - 460V, 3Ø (1 to 3 HP)
- PID Process Control Loop
 - Sleep Mode
 - 0-10VDC or 4-20mA Feedback
 - Loss of feedback or tracking detection
- Built-in Modbus or BACnet Protocols (RJ45 Interface)
- 5 Digit operator's keypad
 - Scalable Display
 - Programming parameters
 - Diagnostics monitoring
- Built-in Speed Pot
- Digital and Analog Inputs - Outputs have extremely fast (~4 msec) update time

CONTROL FEATURES	
<ul style="list-style-type: none"> • 1-16kHz carrier frequency (adjustable) • Acceleration/ deceleration ramps with S curves • Sensorless Vector mode • DC injection braking 	
Input Voltage Range	100-120VAC +10%, -15% 200-240VAC +10%, -15% 380-480VAC +10%, -15%

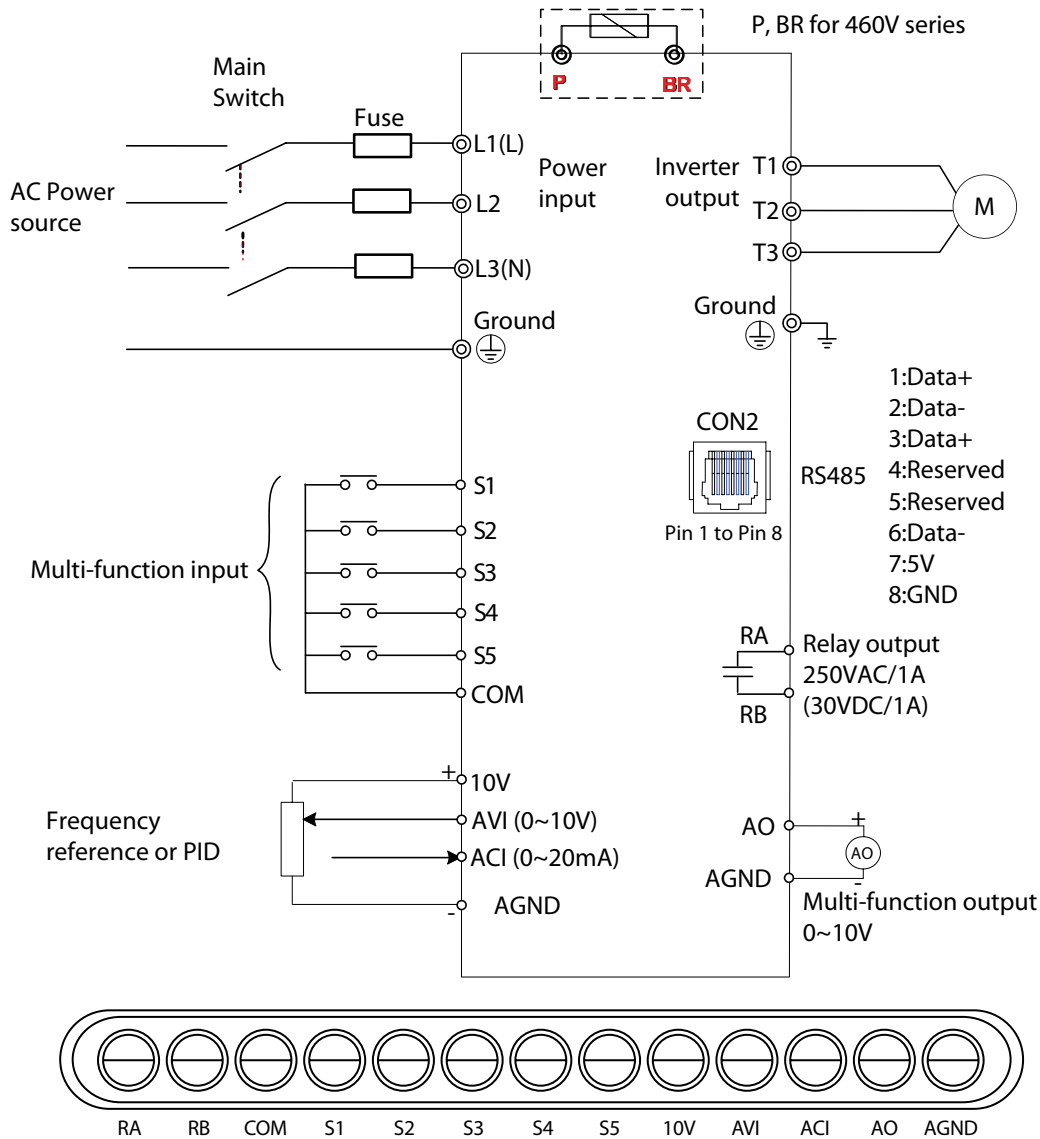
PROTECTION FEATURES	
Overload	Up to 150%, 1 minute
Stall Prevention	On acceleration, deceleration and constant speed
Overcurrent	Instantaneous above 200%
DC BUS Overvoltage	115/ 230V input: >410VDC 460V input: >810VDC
DC BUS Undervoltage	115/ 230V input: <190 VDC 460V input: <380 VDC
Other protection	Ground Fault, Phase Loss, Overtemperature, Loss of PID Feedback External fault setting

ENVIRONMENTAL FEATURES	
Operating Temperature	14-122°F (-10-50°C)
Storage Temperature	-4-122°F (-20-50°C)
Humidity	95% RH or less (non-condensing)
Shock	20 HP or less; 1g (32.2 ft/sec ²) 20-25 HP; 0.6g (19.3 ft/sec ²)
Certification	Complies with IEC 60018-2-78, UL, cUL, CE, & RoHS

Keypad



Wiring Diagram



TERMINAL SYMBOLS	TM1 FUNCTION DESCRIPTION
L1(L)	Main power input, L1(L)/L2/L3(N)
L2	
L3(N)	
P*	Externally connected braking resistor
BR*	
T1	Inverter output, connect to U, V, W terminals of motor
T2	
T3	
⊕	Ground Terminal
RA/ RB	Relay output terminal, Specification: 250VAC/1A(30VDC/1A)
COM	S1-S5 (Common-NPN Type)
S1, S2, S3, S4, S5	Multi-function input terminals
10V	Built-in power for external speed potentiometer
AVI	Analog voltage input, Specification: 0-10VDC/ 2-10V
ACI	Analog current input, Specification: 0/4-20mA
AO	Multi-function analog output terminal. Maximum output 10VDC/1mA
AGND	Analog ground terminal

*P, BR for 460V series

I/O FEATURES	
Digital Inputs	<ul style="list-style-type: none"> • Qty 5 configurable • Over 18 available selections • Assign as normally open or normally closed • 24V Power supply power (internal)
Digital Output	<ul style="list-style-type: none"> • Qty 1 relay output with over 15 available selections • Assign as normally open or normally closed
Analog Inputs	<ul style="list-style-type: none"> • Qty 2 analog input channels <ul style="list-style-type: none"> - 1 at 0-10VDC - 1 at 4-20mA • Adjustable gain and bias on each channel
Analog Output	<ul style="list-style-type: none"> • 0-10VDC • 5 available configurations <ul style="list-style-type: none"> - Output Frequency - Set Frequency - Output Current - Output Voltage - DC Bus Voltage • Adjustable gain and bias

SPECIFICATIONS	
Control Mode	V/Hz , Sensorless Vector (SLV)
Frequency Range	0-599Hz
Frequency Accuracy	Digital Input .01Hz Analog input: 0.1%
Starting Torque	150%/1Hz (SLV)
Overload Tolerance Rated Output Current	150%/1minute
Frequency Settings	<ul style="list-style-type: none"> • Frequency setting with \wedge, \vee keys • Potentiometer on keypad • External input terminals <ul style="list-style-type: none"> - AV1 (0-10V) - AC1 (0/4-20ma) • Multifunction Input (Up/Down)
Acceleration Settings	<ul style="list-style-type: none"> • Two sets of acceleration and deceleration times <ul style="list-style-type: none"> - Jog acceleration - deceleration settings • (0-3600 sec)
Voltage/Frequency Characteristics	<ul style="list-style-type: none"> • Qty 6 preset V/Hz patterns plus user settable V/F pattern • Adjustable voltage (torque) boost

A compact and dynamic drive that is well-suited for these applications:

MACHINES/EQUIPMENT	INDUSTRIES
<ul style="list-style-type: none"> • Fans • Pumps • Mixers • Treadmills • AC contactor replacement 	<ul style="list-style-type: none"> • Food and Beverages • HVAC • Machine Tools • Packaging

TECO-Westinghouse Motor Company offers an extensive line of Variable Speed Drives and Soft Starters for your motor control applications.

We also offer a wide variety of motors that are matched with the Drives and Soft Starters including Vertical Hollow Shaft, Rolled Steel, and NEMA Premium Efficient motors.



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Drive Ratings

All Digital Inputs are Sunked to Control Power Common

115V 1-Phase Input/ 3-Phase 230V Output

MODEL NO.	HP CONSTANT TORQUE	DRIVE AMPS CONSTANT TORQUE	AC INPUT CURRENT	RATED CAPACITY (KVA)	APPLIED MOTOR (kW)
L510-1P2-H1-U	.25	1.8	9.5	0.68	0.2
L510-1P5-H1-U	.50	2.6	13	1.00	0.4
L510-101-H1-U	1	4.3	19	1.65	0.75

230V 1-Phase Input/ 3-Phase Output

MODEL NO.	HP CONSTANT TORQUE	DRIVE AMPS CONSTANT TORQUE	AC INPUT CURRENT	RATED CAPACITY (KVA)	APPLIED MOTOR (kW)
L510-2P2-H1-U	.25	1.8	4.9	0.68	.2
L510-2P5-H1-U	.50	2.6	7.2	1.00	.4
L510-201-H1-U	1	4.3	11.0	1.65	.75
L510-202-H1-U	2	7.5	15.5	2.90	1.5
L510-203-H1-U	3	10.5	21	4.00	2.2

230V 3-Phase Input/ 3-Phase Output

MODEL NO.	HP CONSTANT TORQUE	DRIVE AMPS CONSTANT TORQUE	AC INPUT CURRENT	RATED CAPACITY (KVA)	APPLIED MOTOR (kW)
L510-2P5-H3-U	.50	2.6	4.0	1.00	.4
L510-201-H3-U	1	4.3	6.4	1.65	.75
L510-202-H3-U	2	7.5	9.4	2.90	1.5
L510-203-H3-U	3	10.5	12.2	4.00	2.2

460V 3-Phase Input/ 3-Phase Output

MODEL NO.	HP CONSTANT TORQUE	DRIVE AMPS CONSTANT TORQUE	AC INPUT CURRENT	RATED CAPACITY (KVA)	APPLIED MOTOR (kW)
L510-401-H3-U	1	2.3	4.2	1.7	.75
L510-402-H3-U	2	3.8	5.6	2.9	1.5
L510-403-H3-U	3	5.2	7.3	4.0V	2.2

Braking Resistors

460V 3-Phase *

AC DRIVE HP RATING	MODEL NO.	QTY	RESISTANCE OHMS - WATTS		RESISTOR DIMENSIONS (in.)	BRAKING TORQUE (%)	DUTY CYCLE (%)
1	JNBR-150W750	1	750	150	12"L x 5"W x 5"D	126	10
2	JNBR-150W400	1	400	150	12"L x 5"W x 5"D	119	10
3	JNBR-260W250	1	250	260	12"L x 5"W x 5"D	126	10

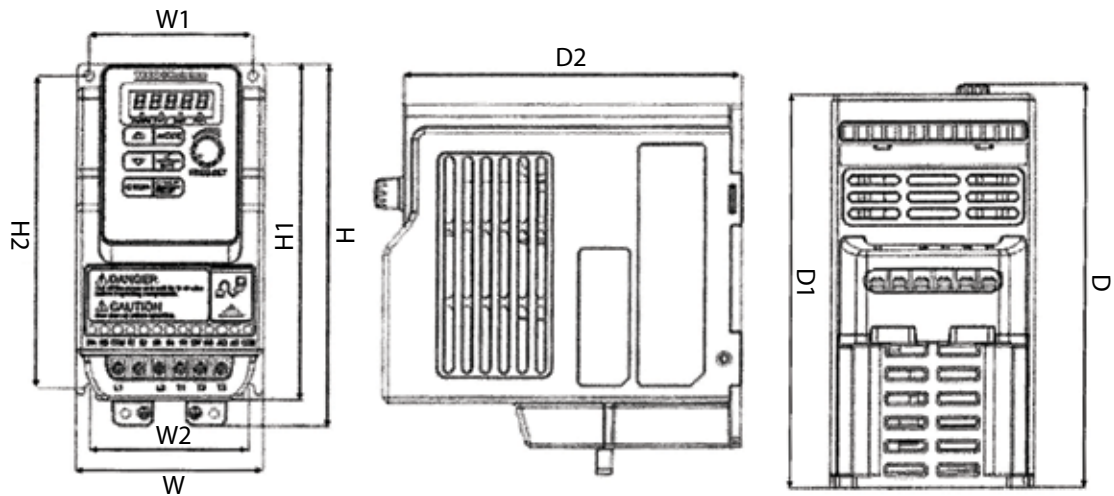
Notes:

Transistor built-in for all L510 460V ratings only (braking resistors externally mounted)

Options

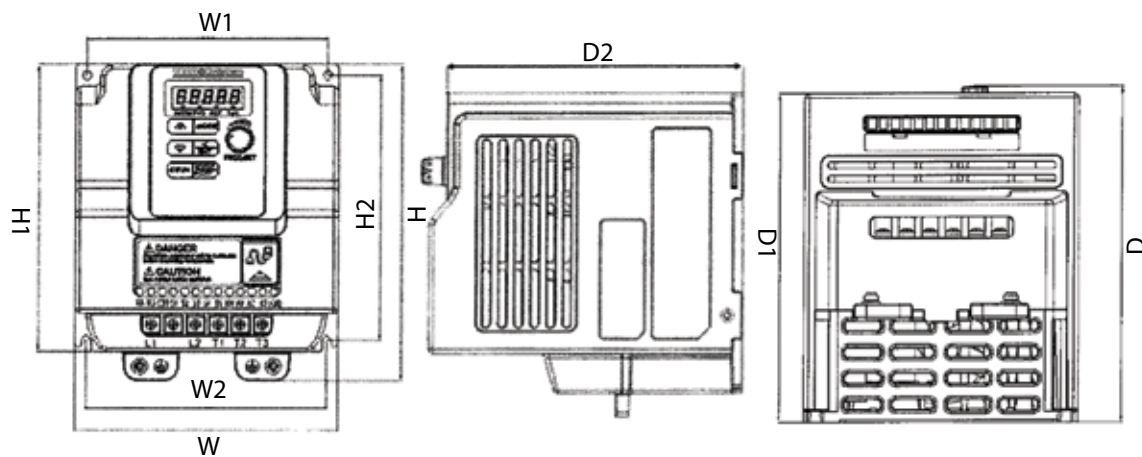
PART NUMBER	DESCRIPTION
JN5-CB-01M	Extension wire (1M)
JN5-CB-02M	Extension wire (2M)
JN5-CB-03M	Extension wire (3M)
JN5-CB-05M	Extension wire (5M)
JN5-CM-USB	USB cable to connect to PC
JN5-CU	Copy Module/ Remote Digital Display
JN5-DIN-L01	DIN RAIL, L510 Frame 1
DINE2-201	DIN RAIL, L510 Frame 2

Dimensional Diagrams



Units: inches (mm)

Model	W	W1	W2	H	H1	H2	D	D1	Weight
L510-1P2-H1-U	2.83 (72)	2.48 (63)	2.40 (61)	5.55 (141)	5.16 (131)	4.80 (122)	5.48 (139.2)	5.35 (136)	2.0lbs (0.9kg)
L510-1P5-H1-U									
L510-2P2-H1-U									
L510-2P5-H1-U									
L510-201-H1-U									
L510-2P5-H3-U									
L510-201-H3-U									



Units: inches (mm)

Model	W	W1	W2	H	H1	H2	D	D1	Weight
L510-101-H1-U	4.65 (118)	4.25 (108)	4.25 (108)	5.67 (144)	5.16 (131)	4.76 (121)	5.80 (147.3)	5.68 (144.2)	3.52lbs (1.6kg)
L510-202-H1-U									
L510-203-H1-U									
L510-202-H3-U									
L510-203-H3-U									
L510-401-H3-U									
L510-402-H3-U									
L510-403-H3-U									