

# 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"> <li>• 1-16kHz carrier frequency (adjustable)</li> <li>• Acceleration/ deceleration ramps with S curves</li> <li>• Sensorless Vector mode</li> <li>• DC injection braking</li> </ul>	
<b>Input Voltage Range</b>	100-120VAC +10%, -15% 200-240VAC +10%, -15% 380-480VAC +10%, -15%

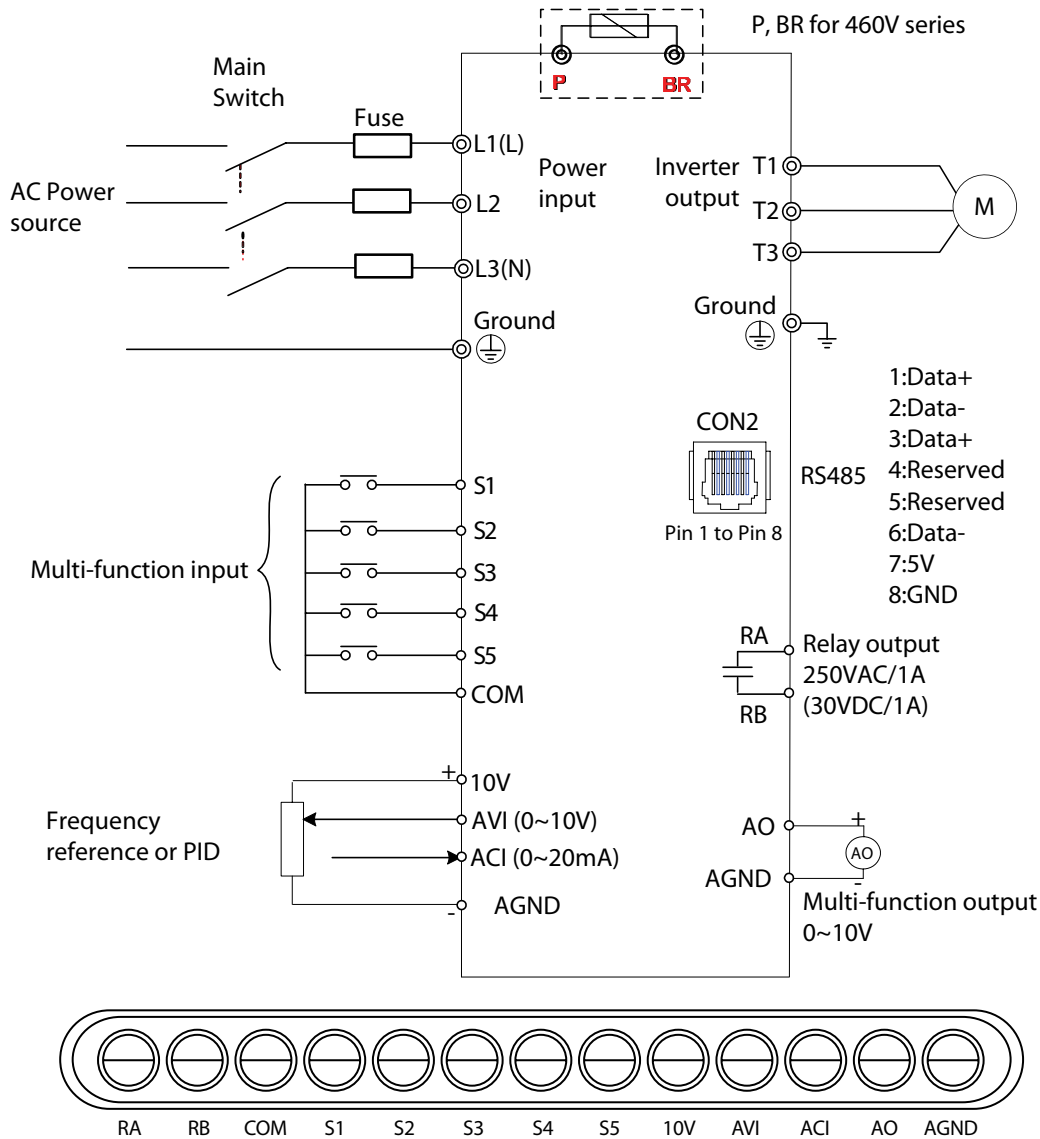
PROTECTION FEATURES	
<b>Overload</b>	Up to 150%, 1 minute
<b>Stall Prevention</b>	On acceleration, deceleration and constant speed
<b>Overcurrent</b>	Instantaneous above 200%
<b>DC BUS Overvoltage</b>	115/ 230V input: >410VDC 460V input: >810VDC
<b>DC BUS Undervoltage</b>	115/ 230V input: <190 VDC 460V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

ENVIRONMENTAL FEATURES	
<b>Operating Temperature</b>	14–122°F (-10–50°C)
<b>Storage Temperature</b>	-4–122°F (-20–50°C)
<b>Humidity</b>	95% RH or less (non-condensing)
<b>Shock</b>	20 HP or less; 1g (32.2 ft/sec <sup>2</sup> ) 20-25 HP; 0.6g (19.3 ft/sec <sup>2</sup> )
<b>Certification</b>	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	
<b>Digital Inputs</b>	<ul style="list-style-type: none"> <li>• Qty 5 configurable</li> <li>• Over 18 available selections</li> <li>• Assign as normally open or normally closed</li> <li>• 24V Power supply power (internal)</li> </ul>
<b>Digital Output</b>	<ul style="list-style-type: none"> <li>• Qty 1 relay output with over 15 available selections</li> <li>• Assign as normally open or normally closed</li> </ul>
<b>Analog Inputs</b>	<ul style="list-style-type: none"> <li>• Qty 2 analog input channels               <ul style="list-style-type: none"> <li>- 1 at 0-10VDC</li> <li>- 1 at 4-20mA</li> </ul> </li> <li>• Adjustable gain and bias on each channel</li> </ul>
<b>Analog Output</b>	<ul style="list-style-type: none"> <li>• 0-10VDC</li> <li>• 5 available configurations               <ul style="list-style-type: none"> <li>- Output Frequency</li> <li>- Set Frequency</li> <li>- Output Current</li> <li>- Output Voltage</li> <li>- DC Bus Voltage</li> </ul> </li> <li>• Adjustable gain and bias</li> </ul>

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

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

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

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

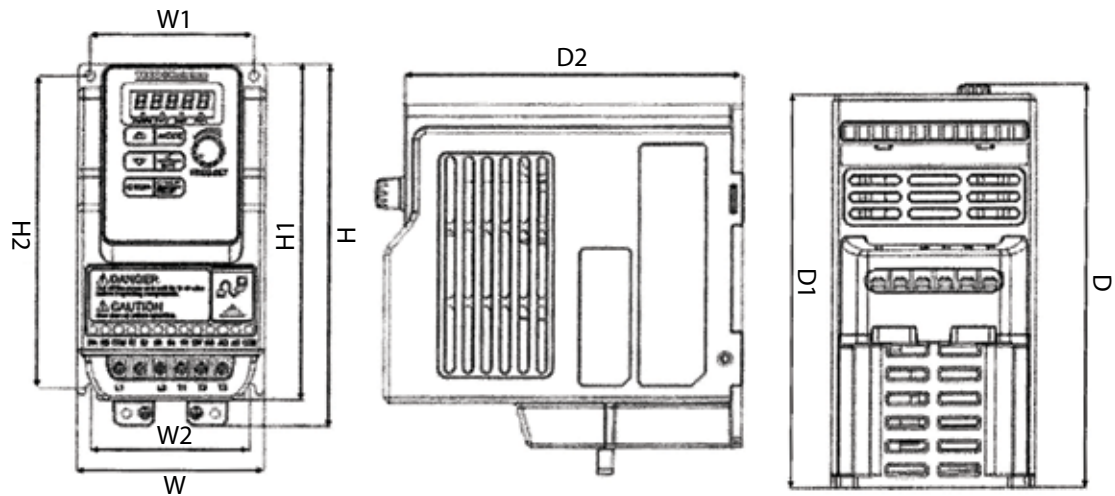
### Notes:

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

# Options

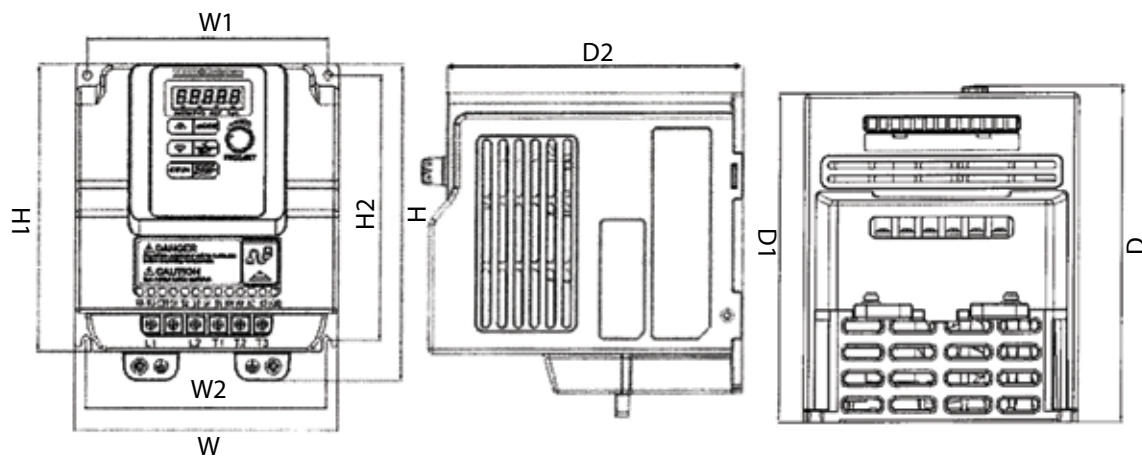
PART NUMBER	DESCRIPTION
JN5-CB-01M	Extension wire (1M)
JN5-CB-02M	Extension wire (2M)
JN5-CB-03M	Extension wire (3M)
JN5-CB-05M	Extension wire (5M)
JN5-CM-USB	USB cable to connect to PC
JN5-CU	Copy Module/ Remote Digital Display
JN5-DIN-L01	DIN RAIL, L510 Frame 1
DINE2-201	DIN RAIL, L510 Frame 2

# 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									